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MADE LAANPERE

Factors influencing women's sexual health and reproductive choices in Estonia

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LIST OF ORIGINAL PUBLICATIONS

The thesis is based on the following publications, which are referred to in the text by their Roman numerals (I–IV):

I Laanpere M, Ringmets I, Part K, Allvee K, Veerus P, Karro, H. Induced abortion trends from 1996 to 2011 in Estonia: special emphasis on repeat abortion. BMC Women's Health 2014;14:81.

II Laanpere M, Rahu K, Part K, DubikaytisT, Karro H. Ethnic differences in factors associated with the use of contraception among 20- to 44-year-old women in Estonia and St. Petersburg, Russia. Contraception 2012;86:132–40.

III Laanpere M, Rahu K, Part K, Haldre K, Karro H. Naiste eelistused ja rahulolu pereplaneerimise nõustamisega Eestis. Eesti Arst 2009;88:715–23.

IV Laanpere M, Ringmets I, Part K, Karro H. Intimate partner violence and sexual health indicators: a population-based study among 16−44-year-old women in Estonia. Eur J Public Health 2013;23:688–93.

Contribution of Made Laanpere to the original publications:

Paper I: proposing the research question, participating in the design of the study and in the data analysis, drafting the manuscript and preparation of final revisions of manuscripts before submission for publication.

Papers II–IV: participating in Estonian Women's Health Survey design and conduction, proposing the research questions and design of the studies, participating in the data analysis, writing the first drafts of the manuscript and preparing of final revisions of manuscripts before submission for publication.

ABBREVIATIONS

AOR	adjusted odds ratio
CI	confidence intervals
CPR	contraceptive prevalence rate
EAR	Estonian Abortion Registry
EFFS	Estonian Family and Fertility Survey
EMBR	Estonian Medical Birth Registry
ESHA	Estonian Sexual Health Association
EU	European Union
HIV	Human immunodeficiency virus
ICPD	International Conference on Population and Development
IUD	copper-releasing intrauterine device
IUS	hormone-releasing intrauterine system
IPV	intimate partner violence
LARC	long-acting contraceptive methods
OR	crude odds ratio
PID	pelvic inflammatory disease
PTSD	post-traumatic stress disorder
SH	sexual health
SRH	sexual and reproductive health
STI	sexually transmitted infections
TFR	total fertility rate
WHO	World Health Organization
YFC	youth friendly clinics

I. INTRODUCTION

The World Health Organization (WHO) defines sexual health (SH) as a state of physical, emotional, mental and social well-being in relation to sexuality [1]. Sexual health (SH) is a core element to the physical and emotional health of individuals and a core element to the socioeconomic development of societies having profound short- and long-term consequences [2]. Some SH consequences, namely trends in fertility during the second half of the past century, can influence the world as a whole. We are facing problems related to rapid population growth in the developing world and, the opposite problem, population ageing as a result of low birth rates in many developed countries [3]. According to the WHO, the main domains of SH are: respect of sexual rights to have a safe and pleasurable sexual life; fertility regulation, e.g., avoiding unintended pregnancy and childbearing; healthy childbearing; and maintenance of a healthy reproductive system [4]. The fifth domain – a sociocultural context – encompasses all the other domains (Figure 1). All domains of SH are closely linked, and improvements in one area tend to diminish problems in the other domains.

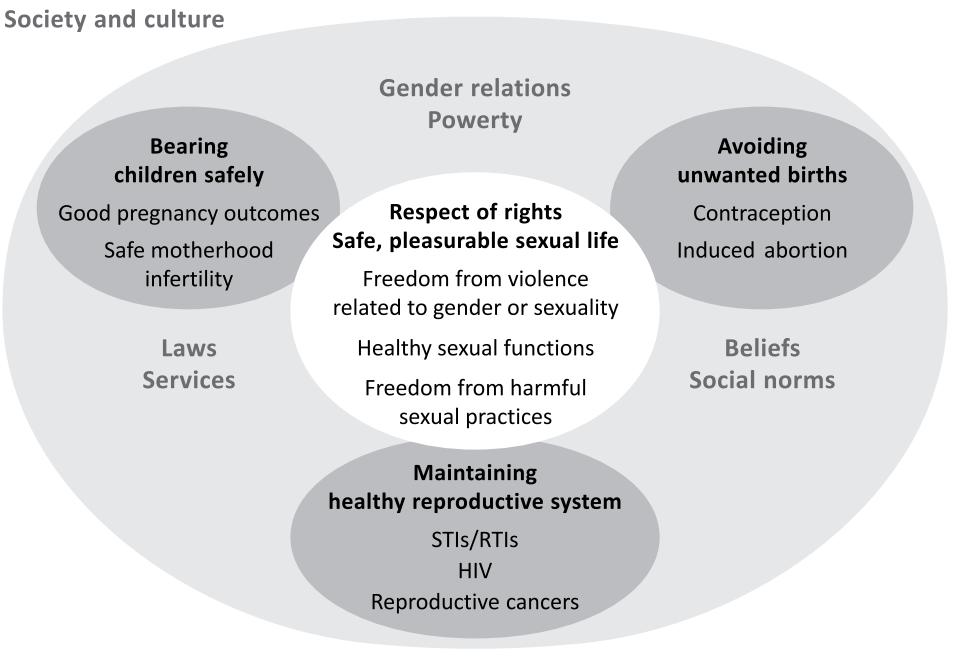

Figure 1. The main domains of sexual and reproductive health.

Source: Collumbien M, Busza J, Cleland J, Campbell O. Social science methods for research on sexual and reproductive health. Geneva: WHO; 2012:7. Published by permission of WHO.

SH is important for both men and women, but is more critical for women due to a combination of biological and social factors [5,6]. For women of reproductive age, 32% of the total global burden of premature death and disease is due to sexual and reproductive ill health [7]. This burden particularly largely reflects reproductive health and pregnancy where women's health needs require special considerations and resources, but other aspects are also important. Factors include the unequal responsibility for contraception and infertility, burdens of sexually transmitted infections/human immune deficiency virus (STI/HIV), and hazards of sexual violence and intimate partner violence (IPV). According to Rebecca Cook et al, two main necessary conditions for good SH are success in achieving or preventing pregnancy and safety from STI/HIV [5]. Although unintended pregnancy is the focus of this research, it is important to acknowledge that all disparities in access to intended pregnancy play the same role [4,8].

The spirit of the definition of SH clearly indicates that it goes well beyond the absence of disease and emphasizes sexual rights as basic human rights. In European countries, such as Estonia, where maternal mortality and morbidity rates are low, abortion is legal and safe, and contraception is easily available, sexual ill-health burden and disparities in SH are related to a lack of information and knowledge, social inequality, gender-based inequality and violence [9].

SH is influenced by a complex interplay of biological, psychological, sociocultural, economic and political determinants which are difficult to measure. In 2006, WHO, to monitor goals and targets of SH, created a list of the most important core reproductive health indictors [10]. While some data about SH are available routinely from countries, most indicators are based on population-based surveys. Estonia has reliable data on the majority of core reproductive health indicators due to the population-based registers with national coverage – the Estonian Medical Birth Registry and Estonian Abortion Registry – which comprise a truly national data collection [11]. However, at the same time, there is a lack of reliable data about some other important SH indicators: use of contraception and contraceptive services; IPV and its health consequences.

The scope of this research is on women of childbearing age in Estonia within the two SH domains: firstly, avoiding unintended pregnancy with the focus on induced abortion and contraception; secondly, respect of sexual rights with the focus on IPV.

The Estonian Abortion Registry has been in operation since 1994 and is considered to provide valid and detailed data on abortions [11]. According to the Registry data, there was an apparently rapid decline in the number of induced abortions in Estonia during the last two decades. However, the abortion rate and proportion of repeat abortions – two to three times higher than that reported in most countries in the European Union (EU) – has attracted negative attention and raised questions about possible causes [12]. Therefore we aimed to describe the trends of induced abortion in Estonia from 1996 to 2011 with an emphasis on assessing sociodemographic characteristics and the use of contra-

ceptive methods among women who underwent repeat abortions. The following research question was asked: “What are the sociodemographic characteristics and patterns of contraceptive use among women undergoing repeat abortions during the study period?”

Induced abortion is mainly the result of non-use of contraception; incorrect, inconsistent use of contraception or contraceptive method failure. The second aim of the research was to assess contraceptive prevalence and patterns of contraception in order to discover the unmet need for family planning in Estonia. The research question was: “Which women are not served well by contraceptive methods in Estonia?”. Particular attention was paid to examining possible discrepancies in contraceptive behaviour not only between the two main ethnic groups in Estonia, but also between groups of the same ethnic origin living in neighbouring countries – Estonia and Russia, namely, St. Petersburg. The two countries have different sociopolitical characteristics and public health platforms allowing the evaluation of the effect of some contextual factors on contraceptive behaviour, including the effect of health care services. We hypothesized that two ethnic groups – Estonians and Russians – might have different contraceptive patterns and factors influencing contraceptive behaviour.

At different points in their lives, people may rely on different fertility regulation strategies and fertility intentions can change rapidly. Individuals’ perspectives on quality of health care are important because their views and experiences influence their satisfaction with care-related treatment adherence, likelihood of returning and their overall health outcomes [13]. The changes in the health care system, addition of new institutions (such as youth friendly clinics and the family doctor system) and provider roles (such as family doctors, family nurses and midwives) during the recent decades in Estonia has made it necessary to define their roles in the provision of contraceptive counselling. The third research question was: “Which health care institutions have been visited, which institutions are preferred and how satisfied are people with contraceptive counselling in Estonia?”

Sexual relationships have a fundamental influence on SH outcomes and reproductive choices. IPV is behaviour within an intimate relationship that causes physical, sexual or psychological harm [14]. There is strong evidence that IPV is consistently associated with increased risk for a number of adverse sexual and other health outcomes among those who have experienced IPV [15–23]. In addition to its human costs, IPV places an enormous economic burden on societies in terms of lost productivity and increased use of social and health services [14,22].

In Estonia, as in other East European countries, IPV has only recently been acknowledged and discussed publicly [24,25]. At the same time, the general population and governmental structures still consider IPV to be a private issue.

Estonian criminal law does not address most of the specifics of domestic violence [24,26], there are no strategies or guidelines in place for the health care system or providers on how to best manage cases of IPV. Given that at the country level, there is no systemic data collection and only scarce research data exist about IPV, we posed the fourth research question: "How prevalent is IPV in Estonia and how does IPV influence SH outcomes?".

In conclusion, the aim of this research is to fill the knowledge gap on women of childbearing age in Estonia within the SH domains of respect of sexual rights to have a safe, pleasurable sexual life and fertility regulation by specifically focusing on unintended pregnancy (induced abortion and contraception) and IPV.

2. ESTONIAN CONTEXT

2.1. Geography, economics and sociodemography

Estonia is one of the smallest countries in the European Union with a territory of 45 200 sq km and a population of 1.32 million people, 45.6% of whom are of reproductive age (15–49-years) [27]. Since the restoration of independence in 1991, Estonia has developed into a fully functioning democracy and adopted liberal policies in its transition to a market economy. In 2013, the minimum wage expressed in purchasing power standards was 411 EUR per month (the fourth lowest in the EU) [28]. In human development, Estonia ranked 32nd among 174 countries in 2013 [29].

Almost two thirds of the population of Estonia are urban. The population consists of two large ethnic groups, namely Estonians (69.9%) and Russians (25.2%) according to the latest census (as of 31 December 2011) [27]. Estonia has one of the highest proportions of ethnic minorities in the population in the EU accounting for one-third of the total population. Society is segregated according to ethnicity across a number of dimensions: language, work and geography – due to reasons rooted in the Soviet occupation of Estonia from 1940 to 1991 [30,31]. Data has shown that ethnic Russians have, on average, a lower health status than members of the majority ethnic group of Estonians [32]

The total fertility rate (TFR) is 1.57 lifetime births per woman. There was a drop in the fertility rate from 1990 until 1998 and the rate has been falling again since 2011. In the intervening period, the TFR increased. In 2013, the annual number of live births was 13,984, i.e. 46.7 per 1,000 women of childbearing age [11].

2.2. Health system

In 2011, Estonia spent 5.9% of its gross domestic product on health (equal to US$ 1,010 per capita) compared to the EU average of 9.6% [33], however, the proportion of publicly-funded health expenditure is relatively high [34]. The Estonian health system is based on compulsory, solidarity-based insurance and universal access to health services. A quite stable proportion, around 95% of the population, is covered by insurance [34]. Contributions to insurance are related to employment, but the share of non-contributing individuals (children, pensioners) represents almost half of the insured; antenatal and obstetric care are covered by insurance. Primary health care is provided by family doctors, who are “gatekeepers” for secondary care, although gynaecologists can be accessed directly.

2.3. Gender equality

The Gender Equality Act was first adopted in Estonia in 2004. In Estonia, the employment rate of women is one of the highest in the EU (70.6%) [28]. Part-time work is not common for either women or men – in 2010, 10% of women in the prime working age (25–49) worked part-time compared to the EU average of 29% [28]. Women are disproportionately represented among high school graduates – 60% of graduates from institutions of higher education are women and there are 148 women with higher education for every 100 men with the same level of education. In parallel with the high employment rate and high graduate education levels among Estonian women, there is the largest pay gap (30%) between women and men in the EU [28]. At the same time, the life expectancy gap between the sexes, about 10 years, is one of the highest in the EU (in 2013 it was 69.4 years in males, 79.2 years in females) [27,28].

2.4. Sexual and reproductive health

Family planning and sexuality issues have become the focus of public debate since the 1990s. Over the past two decades, Estonia has taken SH as a human right rather than taking a moralistic approach to social problems related to sexual behaviour, however, traditional discourse and understanding of sexuality, gender dynamics and the family persist.

The State Sexual and Reproductive Health (SRH) programme was implemented from 2000–2009. Since then, the topics of the SRH domain are covered by the State Public Health Development Plan 2009–2020 and the State Strategy on HIV/AIDS 2006–2015.

After the collapse of the Soviet Union in the early 1990s, the growth in informal economies, including drugs and the sex trade, dramatically escalated the incidence of STI/HIV [35]. Despite the welcome decline of HIV/STI, Estonian HIV rates remain higher than those in other European countries – in 2013, HIV prevalence in the 15–49 years age group in Estonia was 1.3% (1%−1.6%) [36].

Most SRH indicators, collected by EMBR and EAR, have improved significantly over the last 20 years. For example, perinatal mortality (number of perinatal deaths per 1000 births) decreased from 20.1 in 1992 to 3.7 in 2013 and is among the lowest in the EU [37]. Estonia has experienced a remarkable decrease in rates of abortion and teenage pregnancy since 2001 which have occurred in parallel with the implementation of school-based sex education and the establishment of youth SRH services. Sexuality education has been a mandatory part of the Estonian school curriculum since 1996. The country has embarked on a radical transformation of its SH services; specific and successful efforts to reach adolescents and young people have been made [38,39]. In 1991, the first youth-friendly clinic (YFC) was established to address sexual health issues of young people; by 2015, the number of such clinics had increased to 20. Overall, it is believed that these developments have led to the positive changes in many SH outcomes [38,40,41].

3. REVIEW OF LITERATURE

3.1. Sexual health

The WHO working definition about SH, substantially recreated from the definition of "health" by WHO in 1948, is:

> *"Sexual health a state of physical, emotional, mental and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity. Sexual health requires a positive, respectful approach to sexuality and sexual relationships and the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence. For sexual health to be attained and maintained, the sexual rights of all persons must be respected, protected and fulfilled"* [1].

Firstly, this definition accentuates the positive approach to SH, which leads a shift from treating sexual ill-health to promoting sexual well-being. Secondly, it affirms the need to ensure protection and exercise of the individual's sexual rights – human rights including *"right to bodily integrity; consensual sexual relationships; access to sexual health services; to decide freely the number, spacing, and timing of their children; and the ability to pursue satisfying, safe and pleasurable sexual life"* [1]. This approach to SRH has been adopted at the international scene since 1994 when the International Conference on Population and Development (ICPD) in Cairo took place. However, the Programme of Action of the IPCD subsumed sexual health into reproductive health [42]. Since then, there have been important developments in how human sexuality and sexual behaviour are understood, particularly in relation to the HIV epidemic, gender-based violence, unsafe abortion, and other health and social factors that affect SH. These understandings aimed to review how SRH is defined and promoted. It has been widely recognized by international experts that the concept of "sexual health" is much broader – rather than being a component of reproductive health, SH is a necessary condition for the achievement of reproductive health and remains relevant throughout the life-course and for diverse sexualities [1,43,44].

3.1.1. Sexual health determinants

Similarly with other areas of health, SH is influenced by a complex interplay of biological, psychological and social determinants. Even not all aspects of SH have the same set of determinants and their influence variate in different countries and different population subgroups; there are some common determinants that impact upon every aspect of SH [2,5,44]. SH is deep-rooted in a biological dimension – sex and genetics. In every country, people's ability to make decisions about their sexual life occurs in a different context with different personal resources (education, marital status, ethnicity, income, employment etc) and the

capacity to use the resource. Unsatisfactory SH may be the result of lack of information and skills or clashing goals – the dynamics and complexity of sexual relationships have a fundamental influence on SH outcomes and reproductive choices. However, SH is a politically and socially highly contested area of health. Even certain human sexual behaviours and relationship qualities create, enhance and perpetuate SH outcomes, individual choices are influenced by a range of sociocultural, religious, legal, political and economic factors, over some of which the individual has little or no control [2,4,5,44]. Political and legislative environment, the level of a country's wealth and the distribution of power and wealth may promote or limit individual's ability to adopt healthy behaviour. For good SH, the two necessary pre-conditions are access to sexuality education and health care services [2,4,5,44]. Additionally, the dominant sexual ideology, accepted by a society, is one of the major determinants of SH [4,44]. Sexual ideology means values and norms, set by the community and larger cultural environment, which affect the sexuality and govern the sexual behaviour of individuals and couples. Health-compromising practices often reflect these norms, e.g., IPV, sexual violence, social exclusion as a result of sexual identity or infertility.

3.1.2. Sexual health indicators

SH as a complex and multi-dimensional concept is difficult to measure. A shortage of reliable data represents a barrier towards monitoring SH and use of indicators represents an attempt to fill in the gap in available data. According to WHO, indicators are *"markers of health status, service provision or resource availability and are designed to enable the monitoring of goals or targets"* [10]. Monitoring is a process of comparison, across populations, geographical areas or time, to highlight differences or to detect changes over time [10].

WHO classified SH indicators into the following four categories:
1) policy and social indicators;
2) access to services: availability, information and demand, quality;
3) use of services; and
4) outcome and impact indicators [2].

While some indicators are available routinely from countries which have vital registration and health information systems, most indicators are based on population-based surveys.

After the ICPD, a number of international organisations identified a list of 17 indicators for global monitoring and evaluation of reproductive health goals and targets [10]. Due to relative ease of measurement, most of the 17 indicators were outcome measures and focused on negative outcomes. The shift in the meaning of sexuality and SH has created a demand for tools with which to measure SH better. The recent new indicators recommended by WHO were

designed to complement and expand upon the 17 reproductive health indicators by including the concept of universal access to reproductive health and different aspects of SH, including sexual violence [2]. Some of the indicators are measures of health status (outcome or impact indicators) while others are intended to capture a process or a structure. The indicators proposed were grouped under the five core elements of SH:

1) improving antenatal, delivery, postpartum and newborn care;
2) providing high-quality services for family planning, including infertility services
3) eliminating unsafe abortion;
4) combating STI/HIV, reproductive tract infections, cervical cancer and other gynaecological morbidities;
5) promoting SH [2].

Furthermore, the global indicators need to be modified according to local contexts – not all indicators are applicable to every country situation. In 2001, under the auspices of the European Union (EU) health monitoring programme, a project REPROSTAT was undertaken to develop a comprehensive set of SRH indicators for EU Member States. A final set of 13 core indicators for EU countries was developed, as well as a list of indicators that needed further development [45].

3.2. Induced abortion

The root of induced abortion is unintended pregnancy. According to WHO, an unintended pregnancy is an unplanned pregnancy which is either unwanted (that is, the woman did not want to conceive or did not want any more pregnancies) or mistimed (that is, the woman wanted to get pregnant, but not within the next two years) [46].

3.2.1. Induced abortion and health

Among the 208 million women estimated to become pregnant each year worldwide, 59% (123 million) experience an intended pregnancy leading to a birth or miscarriage, the remaining 41% (85 million) of pregnancies are unintended [47].

A third of pregnancies are estimated to be unintended in France [48], two in five in Spain [49], and between a third and half in the USA [50,51]. However, this dichotomous division has been criticized as many people have ambivalent feelings about pregnancy. One of six pregnancies was unintended, between a quarter and a third were ambivalent, and over half were planned in a large population based study NATSAL from Great Britian [52]. In Estonia, a study among pregnant women who had chosen childbirth indicated that 22.7% of pregnancies were unplanned [53].

Induced abortion has been documented throughout the recorded history as debates about birth control methods [54]. In earlier times, all abortions were unsafe with enormous risks on women's lives. Advances in medicine and, in particular, the human rights recognition, made abortion a safe medical procedure and complications from abortion are generally very low [55]. Legal, regulatory, policy and health care contexts concerning abortion vary from country to country, have no effect on a woman's need for an abortion, but may dramatically affect her access to safe abortion. Highly restrictive abortion laws are associated with higher abortion rates. For example, in 2008, the abortion rate was 32 per 1,000 women of fertile age in Latin America and 29 per 1,000 in Africa – in the regions where abortion is illegal in the majority of countries. In Western Europe, where abortion is generally permitted on broad grounds, the according rate was 12 per 1,000 [56]. Each year, an estimated 22 million abortions continue to be unsafe, resulting in the death of an estimated 47,000 women and causing 5 million women to suffer from a disability as a result of complications due to unsafe abortion [55]. Almost every one of these deaths and disabilities could have been prevented through access to sexuality education, contraception, and safe induced abortion.

In developed countries unintended pregnancy is strongly associated with health-related factors (smoking, drug use, depression), as well as aspects of sexual behaviour (early and risky sexual debut, receipt of sexual education from sources other than school, higher frequency of recent sex, and many sexual partners) [52,57].

3.2.2. Reliability of abortion data

Data about abortions are obtained from different sources. In surveys abortion incidence is generally underestimated because a large proportion of women do not report their abortions, which occurs to a greater extent in countries with restrictive laws than in those with liberal laws [56]. Countries with liberal abortion laws have usually some mechanism for regular collection of national statistics. However, even then, statistics on abortion incidence are largely prone to misreporting for many reasons: potential sources of error include missing private sector abortions; inclusion of spontaneous abortions; induced abortions registered as miscarriages, undercounting of medical abortions or the so-called "menstruation regulation" procedure, the inclusion or exclusion of abortions of non-residents and migrants in the national statistics [56, 12, 58]. Part el al., analysing REPROSTAT data about teenage pregnancy rates in Europe, concluded that to interpret data about abortions in EU, it should take into consideration other factors influencing abortion rates, including birth rates and CPR in a particular country [41]. One of the conclusions of the REPROSTAT project was that more consistent reporting of abortion is needed in the EU [12].

One example is Russia, where abortion level has been exceptionally high for several decades, yet the last two decades experienced a considerable decline

according to official statistics. There are advocates that statistics on abortion in Russia are a true reflection of the situation and the observed declining trend in abortion is a real one [59], but also a concern that this favourable change could be largely due to a deterioration of statistical registration already in the 1990s [60]. Last assessment is strongly supported by the fact that at the same time the recent trends in modern contraceptive prevalence show a rise in all countries, except in Russia, where the upward movement appears to level off after 1996 [61–63].

3.2.3. Induced abortion trends worldwide

A notable worldwide decline of induced abortion, mainly attributed by a decline in Europe, from 35 abortions per 1,000 women in 1995 to 29 in 2003, was replaced by a fairly stable period in 2003–2008: 28 abortions occurred for every 1,000 women aged 15–44 years in 2008 [56]. In 2008, the estimated rate was 24 in the developed world and 29 in the developing world. The decline has been largely due to a fall in the rate of safe abortion, while since 2000, the rate of unsafe abortion has remained relatively constant with about 14 per 1000 women aged 15–44 years [47]. Worldwide, 49% of abortions were unsafe in 2008, up from 44% in 1995 [56]. The lowest rates of induced abortion are in Europe. The results indicate persistent and significant, up to four-fold, differences in the rates of termination of pregnancy among the EU Member States [12]. The 24 EU Member States report annually approximately 1.2 million abortions, representing 10.3 abortions per 1,000 women aged 15–49 years. The lowest figures were reported in Germany, Greece, Belgium, the Netherlands and Portugal (6–7.5 per 1,000 women in fertile age). Estonia, Bulgaria, Romania had the highest rate of 20 or more per 1,000.

3.2.4. Induced abortion in Estonia

Abortion has been legalized since 1955 and it happened before any effective modern contraception became available. In all former Soviet republics, Estonia among them, the majority of women relied on non-effective means of contraception, which resulted in the highest incidence of induced abortions in the world [64–66]. This led to what some scholars call an “abortion culture”, whereby women relied primarily on abortion as a family planning method [67,68]. However, abortion was never a matter of choice in the Soviet Union because there were no other effective choices [66,67]. Experts debated about serious dangers of abortion and, at the same time, about serious dangers of hormonal contraception [64,69]. Since abortion was provided in health care system, it was a safe medical procedure, but abortion patients were sometimes treated not respectfully.

In Estonia, abortion is regulated by the Termination of Pregnancy and Sterilisation Act adopted by the Parlament of Estonia (Riigikogu) at the end of 1998.

The level of legislation appears to correlate with abortion accessibility during this long period of time. Women have been legally allowed to request an abortion up until the 12th week of pregnancy. Termination on medical grounds, including termination in females under 15 years and over 45 years of age, is allowed until the 22nd week of pregnancy. The only change in legislation – the parental consent for minors under 18 years has been required since 2009 – was cancelled after heavy debates on 2nd of March 2015. All abortions are performed in health care institutions, holding a license for that procedure, via health insurance schemes for which some of the costs (EUR 35–44) are met by the patient. Medical abortion was introduced in 2005 and in 2013, half of terminations were medical [11].

After regaining independence from the Soviet Union in 1991, Estonia experienced an apparent rapid decline in the number of induced abortions. Nevertheless, REPROSTAT data have shown a 2.5 times higher abortion rate in Estonia than the reported total average in the European Union (25.1 vs 10.3, respectively in 2008) [12]. Moreover, the percentage of repeat abortions did not show the same rapid decline and represented a significant proportion of all induced abortions – two out of three abortions in Estonia were obtained by women who had had at least one before [11]. The number of repeat abortions in Estonia is twice as high as that in countries like Sweden, Finland, England, and Wales [70–72].

Statistical data on abortions have been routinely collected by the Estonian Abortion Registry (EAR) since 1996 [11]. Before EAR was established, only aggregate data from medical institutions were collected by Estonian Medical Statistics Bureau. The reliable data collection conducted by the EAR may partly explain why the abortion rate in Estonia has been reported one of the highest in EU.

In the contemporary Estonia, some religious and moralistic dilemmas around abortion issue have been periodically raised with attempts to undermine abortion rights. It is of paramount importance to have recent and evidence-based knowledge about such sensitive public health issues in order to try and find practical solutions for avoiding unintended pregnancies.

3.3. Contraception

The determinants that affected the abortion rate included a desire for smaller families, a rise in women's age at marriage and first childbirth, an increased prevalence of sexual activity among unmarried women, and a growing participation of women in the labour market [73]. However, the main contributor to the decrease in the incidence and prevalence of induced abortion worldwide is an increased use of modern contraception [73].

Contraception is one of the most visible and demanding part of a woman's SRH concern as far they are exposed to the risk of unintended pregnancy over much of their lives.

3.3.1. Contraception as a human right, developmental and health issue

Over the past 50 years, access to contraception has moved from being an important goal of SRH programmes to becoming a basic human right [74,75]. The most important result of the increased access to contraception is that it has helped to liberate women and promote gender equality – the principles of human rights have enabled millions of women to freely choose the timing and number of their children. Recently, WHO published recommendations especially to point at human rights protection and promotion in the context of contraceptive information and services [76].

Introduction of modern contraceptive methods is responsible for most of the global fertility decline over the last 50 years – fallen by more than 50% since 1950 [77]. The other economic consequences of contraception are associated with women's employment and an increase in their earnings, healthier and better educated children, and an increased proportion of people of working age [78]. The single greatest health benefit of contraception comes from their intended action since the prevention of unintended pregnancies results in a subsequent decrease in maternal and infant mortality and morbidity. The latest estimates are that 222 million women worldwide have an unmet need for contraception and the need is greatest where the risks of maternal mortality are highest and abortion is illegal or unsafe [79]. The number of women who die every year as a result of pregnancy or delivery is estimated to be about 300,000 [80,81]. Many of these deaths are avoidable – two independent analyses using different methods came to the same conclusion: elimination of the unmet need for contraception in developing countries would reduce maternal deaths by about 30% preventing 54 million unintended pregnancies and 79,000 maternal deaths worldwide [79,82].

In addition to the utmost public health perspective, access to and use of contraception also contributes to individuals being able to take control over their own body and sexuality, thus helping them to achieve a safe and satisfying sexual life and health [83].

3.3.2. Contraceptive methods efficacy, effectiveness and measurements

During the last two decades, there have been significant advances in the development of contraceptive technologies, including transitions from high-dose to low-dose combined hormonal contraceptives; from synthetic oestrogen to natural oestrogen; development of new progestogens and delivery methods of hormones (hormone-releasing intrauterine system, skin patch, vaginal ring, implants); less invasive methods for sterilization and new emergency contraceptive agents have been introduced. Since an ideal contraceptive method is missing, no single contraceptive method serves the needs of everybody. A variety of methods is overwhelmingly important to meet different needs and all, often unequal,

opportunities. Contraceptive use overall is greater when more methods are available [84].

In family planning programmes contraceptive methods are usually divided as modern (clinic and supply methods) and traditional (non-supply) methods [10]. Modern methods include female and male sterilization, copper-releasing intrauterine device (IUD), hormone-releasing intrauterine system (IUS), hormonal methods (pill, patch and ring, injectable, implant), condom and vaginal barrier methods (diaphragm, cervical cap and spermicidal agents); traditional methods include rhythm method, withdrawal, abstinence and lactational amenorrhoea [10]. Although, some traditional methods, like breastfeeding, could be reliable [85], and modern methods, like spermicides, unreliable; original concept of modern contraceptive methods is coming from the most important feature of contraceptive method – its efficacy.

Contraceptive efficacy is assessed by the rate of unintended pregnancies during a specified time of exposure. Recently published systematic review about published clinical trials presents the hierarchy in descending order of contraceptive efficacy as follows: female sterilisation/long-acting hormonal contraceptives; Cu-IUDs/short-acting hormonal contraceptives; and barrier methods/ natural methods [86]. Translating efficacy (how well the product works in a clinical trial) results into practice (how well the product works in actual practice), "perfect use" and "typical use" efficacy rates are often presented. Effectiveness of contraceptive methods – their use under typical conditions – is categorized into three tiers ranging from the most effective (implants, IUDs, sterilisation) to the least effective methods (traditional methods and barrier methods, including male/female condoms) [87]. Effectiveness of every method is dependent on its correct and consistent use and the frequency of intercourse [88] – half of all unintended pregnancies in US occur among contraceptive users; only one in ten result from method failure and nine in ten from inconsistent or incorrect method use [89].

Among all the reasons why women choose particular contraceptives, method effectiveness ranks one of the most important. [90]. However, from user perspective there could be other qualities which have at least the same importance as effectiveness. The main concerns are side-effects or health concerns – in some countries, 30–50% of women discontinue use of hormonal methods within the first year of use because of side-effects or health concerns [91]. Other players in decision-making process might be partner-indipendency, user-indipendency, coitus-indipendency, quick fertility reversibility. According to Marcia Meldrum, Christopher Tietze wrote already in the 1950s that *"…any contraceptive approach succeeds only if it is "use-effective" – one which individual women (and men) find appropriate for use within their own lives*"[92]. In addition to effectiveness in preventing pregnancy, some contraceptives also have substantial non-contraceptive health benefits. Condoms prevent STI/HIV. Hormonal methods exert a beneficial effect on many aspects of menstrual bleeding, reducing the risk of iron deficiency anaemia; preventing ovarian, endometrial and

colorectal cancer, functional ovarian cysts, pelvic inflammatory disease (PID), ectopic pregnancy, benign breast disease and; these are effective to alleviate symptoms caused by endometriosis and fibromyoma. Combined hormonal methods have the potential to reduce symptoms related to excess of androgens [93]. More than half of pill users, 58% rely on the method at least in part for purposes other than pregnancy prevention; 14% of pill users rely on the method for only non-contraceptive purposes [94].

Contraceptive methods for men are limited to male condoms and sterilization (vasectomy).

Contraceptive prevalence rate (CPR) and the unmet need for contraception (or the unmet need for family planning) are two key indicators for measuring improvements in SH. Contraceptive prevalence means the proportion of women in reproductive age (15–49) currently using a contraceptive method divided by number of women of reproductive age at risk of pregnancy (sexually active, not infecund, not pregnant, not amenorrhoeic) at the same point in time [10]. The unmet need for contraception concerns women who are at risk of pregnancy but do not use contraception. Broder definition of the unmet need for contraception includes women who use contraceptive methods with limited efficacy; women with unwanted pregnancies; and women with related reproductive health problems like infertility caused by STI/HIV [95,96]. It is even argued that if a woman is using a method that she does not like, it should be considered as having an unmet need [74]. The definition itself is not necessarily a problem until the data are misinterpreted. In countries, like Estonia, where traditional contraceptive methods are still widely used, the difference between levels of unmet need calculated using the conventional or expanded formulation may be considerable.

Data from contraceptive prevalence could be obtained from several sources. However, a population-based sample surveys provide the most comprehensive data on contraceptive behaviour [10]. Differences in design and questions of survey can affect the comparability of the data. Since there is no consistent definition across data sources of what is meant by “currently using” a method of contraception, for measuring CPR, it should be taken into consideration what time period was concerned. Most surveys ask about use “now” or within the past month, although some specify other time periods. As there are usually difficulties to obtain data on how correctly and consistently the methods are used, one option is to chose the contraceptive method used during the last intercourse as an outcome measure. The limitation is that measures of contraceptive use at one point in time do not take into account its changing nature. The precentage of contraceptive methods is usually higher than 100% as some people use more than one method concurrently. The list of indicators about contraception was recently expanded – indicators measuring different aspects of access to and satisfaction with contraceptive services has been added [76].

3.3.3. Factors influencing contraceptive behaviour

In developed countries where all modern contaceptive methods are available, only few practise unprotected sex. In comparative population representative samples, 7.4% of women in US [97], 5% in Australia [98], 9% in Canada [99], and 2.7% in France [48] did not use any contraceptive method during their last intercourse. This indicates that the availability of and access to contraception is not sufficient – even in countries where modern contraception is readily available, there are women and couples who do not want to become pregnant but still do not use contraception.

According to the studies, explanations, why women who wish to avoid pregnancy do not use contraception, largely fall into four categories: contraceptive method-related factors; user-related factors; partner-related factors; and cost [50,100,101]. From user-related perspective, different patterns of contraception use result from user sociodemographic background. Women with a low socioeconomic status and educational level and belonging to ethnic minorities have shown less effective use of contraception. [8,51,52,89,97,102–105]. A review on the research from 1995 through 2005 aimed to determine the reasons for contraceptive non-use among women who are at risk of unintended pregnancy, identified multiple associated factors, including contraceptive side effects, cost, lack of access, low perceived risk, lack of planning, negative attitudes, ambivalence about pregnancy, perceived negative influences from partner and friends, dissatisfaction with health care providers, and forced sex [102]. A review of 45 publications since 2005 on factors associated with unprotected sex found that it has consistently been associated with increasing age, being married, recent experience of IPV, contraceptive side effects, and infrequent sexual intercourse [106]. However, differing patterns of contraceptive use across regions may not always reflect women's personal preferences and sexual behaviours as much as contextual factors – sociopolitical decisions, the range of methods offered, access to health care services, the attitudes of medical professionals and cultural diversities [8,50,89,97,101,106]. Further, sociocultural environment, e.g., sexual ideology, contributes to and shapes individual choices and behaviours [4,81]. For example, Kulczycki claimed that the continued popularity of withdrawal in Turkey reflects widespread cultural and historical legitimacy of this method and there is little sign of withdrawal being replaced in Turkey anytime soon by modern methods [107].

Last, but not least, contraceptive choices themselves change, influenced by the multiple aspects of the context of women's lives. Therefore, contraception is often a month-by-month rather than a concious strategy and the role of contraceptive services is, thus, hard to overestimate [108].

3.3.4. Contraception trends globally

Analysis of contraceptive trends is challenging: the methodological differences between data sources complicate derivation of reliable estimates. United Nations Population Division provides systematic data about annual contraceptive prevalence and unmet need for family planning among married women or women in union in age 15–49 of 194 countries or areas of the world from 1970 [109].

According to the most recent data available, contraceptive prevalence varies between 4% in South Sudan and 88% in Norway. Worldwide, almost all regions had an increase in CPR from 54.8% (95% CI 52.3–57.1) in 1990, to 63.3% (60.4–66.0) in 2010 and a decrease in unmet need for family planning from 15.4% (14.1–16.9) in 1990, to 12.3% (10.9–13.9) in 2010 [109,110]. The overall distribution of contraceptive methods has changed globally: the proportion of sterilization has decreased, while that of long-acting reversible contraception (LARC) has increased [111]. Nevertheless, for the world as a whole, female sterilization is still the most common method of contraception; more than half of contraceptive users worldwide relied on either female sterilization or the IUD. In developed regions as a whole, combined hormonal methods and condom accounted for more than half of all contraceptive use. Nine out of every 10 contraceptive users in the world rely on modern methods of contraception. Traditional methods are the most commonly used in Middle Africa, Western Africa and Western Asia [109].

To gain better insight into SH in EU, data about contraceptive prevalence were collected in the frame of the REPROSTAT project from 27 Member States in 2008 [112]. Data were obtained from a mixture of national surveys or other resources and are open to several limitations. However, despite these limitations, CRP and a mix of contraceptive methods varied among Member States. Hormonal contraception was the most frequent contraceptive method used in most EU countries. Estonia was the country with the highest usage of withdrawal, which tended to be, with rhythm method widely used in the eastern part of the EU. However, the overall use of modern methods increased in this region during the last two decades.

3.3.5. Use of contraception in Estonia

Estonia is a country with an early demographic transition like other “western” countries. In terms of fertility transition, Estonia had achieved below replacement fertility already by the 1920s without the benefit of modern methods of contraception [113].

Since 1970, inert IUD and poor quality condoms with a high failure rate became erracticly available [64]. Hormonal contraceptive pills, available since 1974, were almost banned for contraceptive purposes by the Soviet Union Ministry of Health. The warning label included a list of contraindications and side-effects not supported by evidence [64]. Textbook for medical students,

published in Estonia in 1981, suggested not to use hormonal contraception for more than one and half year and during this time monitor liver function and coagulation factors [114]. Because of lack of any evidence-based information, pills were distrusted by professionals. Usually women were advised against the pills and the public opinion was "physician-dictated" [64,65,115]. This created different cultural patterns, e. g., negative attitudes towards contraception compared to the societies where contraception practice is widespread [64]. As a result, misinformation, misconceptions and rumours about modern contraceptive methods are still common. A further disincentive to the use of preventive methods was the fact that the state charged for contraceptives whilst abortion was free [115]. The lack of contraceptives of this time was very often mentioned in the Estonian sexual autobiographies reporting on sexual life after the first intercourse. Many women and men were constantly worried about unwanted pregnancy [116]. Since the early 1990s, all modern contraceptive methods have become available in Estonia. At the same time, abortion has been partly reimbursed. All students, women three months after abortion and one year after delivery got a 90% reimbursement for pills and IUDs. These benefits were replaced in 2000 by universal reimbursement of 50% for all contraceptive methods under prescription, copper IUDs are reimbursed to 100% during one year after delivery. In the middle of 1990s, emergency contraception was introduced in Estonia and since 2000, it has had over-the-counter status. Male and female voluntary sterilization is legally regulated by the Termination of Pregnancy and Sterilisation Act adopted by the Riigikogu, the parliament of Estonia, at the end of 1998.

There are no regular-based surveys or data collection regarding contraceptive usage in Estonia. A few population-based studies have included questions about contraception into their survey questionnaires. Most of them have several shortcomings, which did not make it possible to estimate CPR in country and making comparisons was also difficult. The first time, when survey data about contraception use in Estonia was presented, was during a survey carried out in Tartu in 1984 and it showed that 28% of women with one or more children attending outpatient clinics had used some modern contraceptive method, 3% had used hormonal pills, 13% IUD and 11% condoms [64]. The two rounds of Estonian Family and Fertility Survey (EFFS), a national part in the European Gender and Generation programme (in 1994 and 2004) had some questions about birth control [117,118]. In 1994, 3% of non-pregnant, sexually active women 20–49 years of age had used pills during the last month. The second round of EFFS ten years later calculated the cumulative use of contraceptive methods in birth cohorts from 1924 to 1983 and showed clearly that the use of pills and condoms increased among younger cohorts [118]. However, the proportion of traditional methods was almost the same in all birth cohorts. In 2000, Elina Haavio-Mannila carried out "Comparative Survey of Human and Intimate Relationships 2000" [119], the first SH survey in Estonia. The survey showed

that half of the respondents in need of contraception and having had intercourse in the past year had used modern contraceptive methods in his or her latest sexual intercourse. There was no gender difference in the likelihood of having used reliable contraceptive methods, but there was ethnic difference: Estonian-speaking respondents had used reliable contraception more commonly than Russian-speaking respondents. 5% of Estonian-speaking and 14% of Russian-speaking women had used no contraception even though they needed it.

3.3.6. Contraceptive counselling in health care

The primary purpose of contraceptive counselling is prevention of unintended pregnancies. Even though there is no standard definition, contraceptive counselling is more than giving information – it is a form of interpersonal communication providing patients an opportunity to express their own values, wishes and concerns. Although the scope of this research is unintended pregnancy, access to and quality of contraceptive counselling is a part of overall family planning and preconception care.

The most of effective contraceptive methods are available only by prescription or must be inserted by a medical professional. Access, quality of care and medical barriers are the three main conceptual determinants relevant to the process from making contact with health care services to adopting contraceptive method [120]. Access to contraception has been defined by Bertrand: *"Access is the degree to which services can be obtained at a level of effort and cost that is both acceptable to and within the means of a majority of the population"* [120]. Access to SH care, including economic, geographic, phsycosocial and administrative access solely does not sufficiently address the problem of unintended pregnancy [75,120]. There is a general agreement that the quality of SH care influences individuals' decisions to use contraception [121,122]. Promoting health care service quality was influenced by the establishment in 1990 of a framework that outlined the essential elements of the quality of care in family planning service delivery [123]. Bruce proposed a framework for assessing quality in family planning services from the patient's perspective consisting of six parts – choice of contraceptive methods, information given to clients, technical competence, interpersonal relations, follow-up and continuity mechanisms, and the appropriate constellation of services [123]. The framework also distinguishes information-giving from counselling with influencing clients' confidence, satisfaction with services, and probability of continuity of care empowering individuals to make informed decisions. The patient's rating of interpersonal interactions is a process measure of satisfaction, addressing different qualities: responsiveness, friendliness, empathy, courtesy, confidenciality, competence, and availability. However, there have also been critiques of the use of satisfaction as a measure of quality. In a review of the literature on patient satisfaction Crow et al. argued [124] that satisfaction is a relative concept. Therefore, what satisfies one person may dissatisfy another since their need or expec-

tation of care may differ. Despite this, the studies capturing contraceptive counselling have shown that patient's satisfaction is related to return visits to the provider and with adherence to medical recommendations, readiness to continued care and adherence to therapy [125–127].

The delivery and quality of general health services determine the provision and quality of SH services. The surveys on the use of health care services regularly carried out in Estonia have shown high levels of satisfaction with both the primary care and specialized medical care. Since 2002, regular patient satisfaction surveys have been carried out on behalf of the Ministry of Social Affairs. In 2008–2013, 86–92% of the respondents were very satisfied or generally satisfied with their visits to a family doctor and 87–90% with their visits to a medical specialist [128].

During the last two decades SH services have undergone profound changes in Estonia. Until beginning of the nineties, contraceptive counselling was provided exclusively by gynaecologists. Only recently, midwives and family nurses have become responsible for family planning issues. In addition to the women's outpatient clinics, new types of primary health care services offering contraceptive counselling were set up in the late 1990s: private gynaecological practices and, the YFC network. Although the SH services can be as stand-alone services, like YFC network in Estonia, it has been emphasized that contraceptive counselling should be integrated into primary care with referral if required [76,129]. Moreover, YFC are available only for young people under 25 years old. In countries where primary health care system is the main provider of contraceptive counselling, the prevalence of modern contraception is high and abortion rate is low. For example, in Finland health care services are offered equally to all residents – every municipality must have a health centre which provides, among other things, family planning services [44]. As for other Nordic countries, in 1993, 99% of primary care doctors in Denmark, 94% in Iceland and 90% in Norway provided contraceptive counselling [130]. In Estonia, along with the reformation of the health care system in the nineties, family planning was included into primary care and became a part of family doctors professional standard. In a study conducted in 1993, only 2% of primary health care doctors reported that they had been ever prescribed hormonal contraception; in 2000, already 79% of family doctors agreed that family planning was their responsibility [131,132]. According to a study carried out in 1997, 59% of female respondents at the age of 18–50 considered it more convenient to visit a family doctor than a gynaecologist for family planning and 54% thought that a family doctor was able to take care of family planning [133].

3.4. Intimate partner violence

IPV is a behaviour within an intimate relationship that causes physical, sexual or psychological harm, including acts of physical aggression, all forms of sexual coercion, psychological abuse and controlling behaviours [14]. IPV between current or former spouses or partners together with intergenerational violence understood in criminal justice as "domestic violence" – that is, violence largely between family members, e.g., intimate partners, usually, though not exclusively, taking place in the home [134]. Dating violence takes place within intimate relationships, mostly among young people, has a varying duration and intensity and does not involve cohabiting.

IPV and sexual violence are among the most pervasive forms of violence against women. Representing an assault on a person's fundamental human rights, IPV may be both a sign and a consequence of gender discrimination – overwhelming majority of those experiencing IPV being women and the majority perpetrating it being men [134].

Violence against intimate partner, is a major violation of human rights and public health concern. In addition to its human costs, IPV places an enormous economic burden on societies in terms of lost productivity and increased use of social and health services [14,134].

3.4.1. Intimate partner violence determinants and prevalence

IPV as a multifaceted problem has biological, psychological and social determinants. Public health approach, the model firstly described by Heise, considers IPV the outcome of multiple risk factors and causes, interacting at four levels: individual, close relationship/family, community and wider society [14,134]. Over 50 risk factors of IPV have been identified and described in multiple studies [134]. Because of the complexity of the roots of IPV, this affects a large proportion of the population and occurs in all countries, irrespective of social, economic, religious or cultural group. In EU countries, women in various socio-economic groups were equally exposed to victimisation [15]. Among all factors, two seem to be the most important for IPV: the unequal position of women in relationship and in society and the normative use of violence in conflict [14,15,134–136].

Much of what is known about IPV prevalence comes from different surveys. The WHO Multi-Country Study on Women's Health and Domestic Violence Against Women [137] involved more than 24,000 women between the ages of 15 and 49 living in 10 low-and middle-income countries. The survey found that at some point in life, physical IPV was reported by 13–61% and sexual violence by 6–59% of the interviewees. In the US, a nationally representative survey among 16,507 women and men aged 18 and older showed that more than 1 in 3 women (35.6%) had experienced IPV in their lifetime and 1 in 17 women had experienced IPV in the 12 months prior to the survey. Nearly 1 in 10 women

(9.4%) had been raped and 16.9% of women had experienced sexual violence other than rape by an intimate partner at some point in their lifetime [16]. For the first time, EU-wide data on 42,000 women at the age of 18–74 showed that 22% of the women who were or had been involved in a relationship with a partner, had experienced physical and/or sexual IPV since the age of 15 and 8% of the women in the 12 months before the survey [15]. Considering the results at country level, the rates of life-time IPV range from 30–32% in Finland, Denmark and Latvia to 13% in Austria, Croatia, Poland, Slovenia and Spain.

These and other studies indicate that psychological, physical and sexual IPV are closely intertwined – a majority of women who reported sexual IPV also reported physical IPV. For example, out of the women who had not experienced any form of psychological violence by their current partner, only 2% indicated that they had been physically or sexually abused by the same partner [15]. IPV rates vary greatly within and between countries and by data source. According to official police and other criminal justice statistics, IPV is largely under-reported [134]. Not only differences resulting from the sources of data, various other factors affect the quality and comparability of data on IPV, including inconsistencies in the way violence is defined, variations in the selection criteria for study participants, the willingness of respondents to talk about violent experiences. Violence is culturally determined – victimisation rates in surveys reflect the extent to which it is socially acceptable to talk about violence. Generally, higher rates of IPV tend to occur in lower-income countries, while increased gender equality leads to higher levels of disclosure about IPV. The EU Member States scoring higher on the Gender Equality Index also tend to have a higher prevalence of violence against women [15].

3.4.2. Intimate partner violence and health

IPV was ranked third among risks in terms of years of life lost owing to disability for women aged 15–49 years in the Global Burden of Disease Study 2010 [138]. The influence of abuse can persist long after the abuse itself has stopped and the impact over time of different types of abuse, severity of abuse and of multiple episodes of abuse appears to be cumulative [17,18,139]. Serious adverse effects of IPV can last not only a lifetime, but span generations. Children who witness marital violence are at a higher risk for mental and physical health complaints [140]. The growing body of literature on the association of IPV and adverse health outcomes currently includes a range of methodological enquiries which allowed to show temporal pathways between IPV and many health consequences like somatic symptoms, poor sleep patterns, HIV, and aspects of mental health including depression, anxiety, and post-traumatic stress disorder (PTSD) [18]. Numerous studies have documented increased risk for a number of adverse physical, mental, sexual, and other health outcomes among those who have experienced IPV [15–23]. Below conclusions

emerging from current research about the health consequences of IPV are described.

IPV accounts for a significant number of deaths by homicide among women [141,142]. Fatal outcomes are also suicides [143], HIV-related deaths and maternal mortality. Women who have been abused experience reduced physical functioning, disabilities, activity limitations, more physical symptoms and lower self-rated health than non-abused women. More common physical outcomes of IPV are not physical injuries, but different physical symptoms which have no identifiable medical cause, such as gastrointestinal disorders and various chronic pain syndromes. Victims of IPV have an increased risk of chronic diseases like asthma, diabetes, joint disease. There are many theories as to why IPV victims have an increased risk of chronic diseases. Including a greater reporting of physical symptoms in general; or the adoption of health risk coping behaviours like smoking, binge drinking and other addictive disorders; or the increased prevalence of these conditions is attributable to the neurobiological response to chronic stress associated with violent experiences [144,145].

Well-known strong associations exist between IPV and mental health diseases like PTSD [146–148], depression [149], generalized anxiety disorder, phobias, panic disorders, and substance abuse. Several studies of depression and IPV have suggested that IPV may be a stronger predictor of depression than cultural and sociodemographic factors or a prior mental illness [150,151].

IPV is linked to sexual ill-health in many direct or indirect ways. Reduced autonomy is the result of an inequitable and coercive relationship and restricts ability to make sexual and reproductive choices [152–157]. Overt discussions and negotiations about contraception can be difficult in a violent relationship and result consistently in a higher level of contraception nonuse and inconsistent use of partner-dependent contraceptive methods [158]. Through coerced sex, IPV can lead directly to an unintended pregnancy and STI/HIV, or else indirectly by interfering with a woman's ability to protect herself from an unintended pregnancy and STI/HIV. IPV is associated with induced abortion [159]. Women who report having HIV or are unsure of their HIV status report more often IPV compared with women who are HIV-negative [160].

There are also a variety of adverse gynaecological outcomes including an increased risk of chronic pelvic pain, PID [161,162] and dysmenorrhea [163]. Sexual dysfunction has been associated with IPV, likewise has the risk of having cervical cancer [163]. Two studies found an association between IPV and hysterectomies [161,164].

Violence and pregnancy is an extremely complex issue with consequences not only for the woman but also for the unborn child [165–168]. Prevalence rates of physical violence during pregnancy ranged between 3.0% and 10.9% and emotional abuse from 1.5% to 36% [168]. Pregnancy, often unwanted, can be the trigger for IPV with 14% of the respondents or escalate IPV with 64% [165]. Women who are pregnant and victims of IPV have high rates of stress, are more likely to smoke or use other drugs and are less likely to obtain prenatal care.

Experiencing assault during pregnancy is associated with a range of negative reproductive outcomes, including infectious complications, spontaneous abortion, premature labour, antepartum haemorrhage and low-birth-weight babies [165–167].

The majority of victims of IPV and sexual violence do not seek immediate help. However, previous research suggests that IPV victims make more visits to health providers over their lifetime, have a greater number of "bed days", more and longer duration of hospital stays [145,169–171]. Therefore, health arena is an entry point for many victims of violence and a healthcare provider is likely to be the first professional contact for survivors of IPV – even if they do not disclose the associated violence [14,21,139]. This makes the health care institution an important place where women undergoing abuse can be identified, provided with support and referred to specialized services. Unfortunately, studies show that in most countries health care professionals rarely enquire of women whether they are being abused, or even check for obvious signs of violence [14,172]; and patients themselves seldom report their abusive experiences [173].

In recent years, attention has turned towards reforming the response of health care providers to victims of abuse. An overwhelming majority of women in the EU (87%) and in Estonia (90%) reported that it would be acceptable if doctors routinely asked women who have certain injuries whether those had been caused by violence [15]. Routine screening for the IPV by the health care providers is often recommended in literature [137,174,175]. American College of Obstetricians and Gynaecologists' has seen screening of IPV as a core part of women's preventive health visits [176]. A recent systematic review and meta-analysis [177], guidance from the UK National Institute for Health and Care Excellence [178] and WHO [134] do not suggest routine screening in health care. However, health-care providers should ask about exposure to IPV when assessing conditions that may be caused or complicated by IPV and in antenatal care. Therefore, it is extremely important to know the health consequences associated with IPV to address violence in health care.

3.4.3. Intimate partner violence in Estonia

Studies about IPV in Estonia are relatively scarce. It was not until 2001 that the first IPV related survey was conducted in Estonia [24]. This showed that one fifth of women aged 15−74 were exposed to violence by someone during the previous year of which 63% took place at home. In 2002, a repetitive study including health issues yielded similar results: during the one-year study period, every fifth female was a victim of violence and two thirds were perpetated by an intimate partner [24]. The study revealed that almost every other case of violence ended with physical injuries for the woman, every sixth caused serious

injuries. Only one third asked for medical help, many victims have had long-term consequences for mental health.

In 2006, a survey "Behaviour of women in labour and home violence in Estonia" was carried out, results of which revealed that approximately one tenth of women who had recently given birth had been suffering from IPV during their last pregnancy by their present and one fifth by their prervious partner [180]. According to the results of the survey, IPV increased during pregnancy, physical violence in particular became more intensive [179].

In 2009, Statistics Estonia conducted a Safety Survey, one of the goals of which was to study occurrence of IPV [180,181]. The study considered that data on IPV are not reflected in the statistics about recorded offences compared with police statistics. According to the study, half of the 15–74-year-old women and men stated that they had at least once in their life been exposed to IPV, 39% had been exposed to psycological abuse, a third to physical abuse and 4% to sexual abuse since the age of 15. More than half had repeatedly been exposed to IPV, 18% for more than five times. Female partners (32%) compared to males (6%), suffer more severe violence: beating, strangling, attack with a gun and sexual violence.

A recent EU study found that 50% of Estonian respondents experienced psychological violence, 19% physical and 7% sexual IPV since the age of 15 (the EU averages being 43%, 20% and 7%, respectively) [15]. Physical injuries sustained in the most serious incidents of physical and/or sexual violence by a partner since the age of 15 were experienced by 52% respondents in Estonia (the EU average being 42%). The most frequent long-term psychological consequences of the most serious incidents of physical and/or sexual violence by a partner since the age of 15 were anxiety (32%) and depression (35%); 37% of the respondents reported loss of self-confidence, 30%, feeling vulnerable and 28%, difficulties in sleeping [15].

In 2014, a national population survey conducted among 1,111 Estonian inhabitants aged 15 and older mapped attitudes and awareness in the areas of domestic and gender-based violence. Slightly more than half of the people (54%) believe that the victim of domestic violence is to be blamed. Younger people, those with better education, higher income and living in the capital city and its surroundings as well as Estonians and women are significantly more sensitive to IPV [182].

Studies indicate that IPV is a widespread and serious problem in Estonia. Despite that, in the EU survey, only 11% of women considered violence against women to be very common in Estonia compared to 27% in EU average [15]. Women's overall low awareness of the specific legislation concerning prevention of and protection from domestic violence in Estonia was two times lower than in EU average reflecting the country current situation about victims care [15].

4. AIMS OF THE RESEARCH

The **overall aim** of this research was to provide evidence on factors influencing women's sexual health and reproductive choices in Estonia.

In order to do that, the following **specific** aims were set:

1. To describe induced abortion trends from 1996 to 2011 with an emphasis on sociodemographic characteristics and the use of contraceptive methods before abortion among women who underwent repeat abortions in Estonia (Paper I).
2. To estimate prevalence rates of different contraceptive methods and to assess the impact of sociodemographic factors, reproductive history, sexual- and health-risk related factors on contraception use among different ethnic groups in Estonia and Russia, St. Petersburg (Paper II).
3. To investigate use of, preferences for, and satisfaction with, contraceptive counselling by different contraceptive service providers among women over 24 years old in Estonia (Paper III).
4. To estimate the prevalence of intimate partner violence within the last 12 months, and to explore the associations between intimate partner violence and reproductive choices and sexual health outcomes in Estonia (Paper IV).

5. MATERIALS AND METHODS

This research is based on the data from the Estonian Abortion Registry (Paper I) and data of the cross sectional sexual health surveys (Paper II–IV).

Surveys were conducted in Estonia (Paper II–IV) and St. Petersburg (Paper II) by REFER (Reproductive health, fertility patterns and family formation in Russia) – an international research consortium in the frame of the project "Reproductive Health and Fertility Patterns – A Comparative Approach" (http://www.valt.helsinki.fi/staff/rotkirch/RH_&_fertility_patterns.html).

The questionnaire used in the surveys was compiled jointly by Estonian, St. Petersburg and Finnish researches from REFER. Panels of researchers negotiated a "best fit" for the translated questionnaires into target languages; each language version (English, Estonian, Russian) was compared with the others to ensure comparability [183]. The mastercopy of the questionnaire was in English; later translated into Estonian and Russian. The survey instrument used originated from the sexual health survey conducted in Finland in 1994 [184] and later surveys [185–188]. The survey instrument used in Estonia and St Petersburg contained also site specific questions.

The structured questionnaire used in Estonian Women's Health Survey consisted of 128 and that of St. Petersburg, of 109 questions covering the following domains:

1. Sociodemographic characteristics
2. Intimate relationships and sexuality
3. Pregnancies and children
4. Use of pregnancy and delivery related health care services
5. Contraceptive methods
6. Plans for having children
7. Health and use of health care services

The questionnaire was designed for self administration by the study participants.

5.1. Data sources and collection

5.1.1. The Estonian Abortion Registry

The EAR was established in 1994 [11]. Statistical data on abortions have routinely been collected since 1996. The instrument used for gathering data for the EAR about abortions is the Abortion Card, which includes data describing the abortion procedures, as well as each woman's sociodemographic and reproductive background. For every abortion, the Abortion Card is completed by a health care worker by interviewing the patient before the abortion procedure and using medical health records. All abortions, including spontaneous and induced abortions, e. g., induced abortions for medical reasons as well "other abortions" (coded by the International Classification of Diseases 10 as codes

O01, O02, O05, O06) are registered by health care institutions providing abortion care. Reporting is compulsory for all health care institutions, including all private health services. The coding, input, control, correction, saving and processing of data is carried out by the EAR registry on a regular basis. Since 1999, by decree No43 of the Minister Social Affairs, the EAR has legally not been allowed to collect the patient's personal identification number, which impairs and limits the linkage of abortion data.

5.1.2. Estonian Women's Health Survey

In study size calculations it was taken into account that (a) in accordance with the Estonian Family and Fertility Survey [117] the percentage of sexually active women in the age groups 16–25, 26–35 and 36–44 years was 32.8, 66.5 and 57.5 (a conservative estimate), respectively, and (b) the response rate was 41.2% by the Human- and Intimate Relationship Survey 2000 [181]. If the response rate in all age groups will be the same, then in order to reach statistically significant (significance level = 0,05; two-sided test; power 0,80; ratio of the group under consideration to an comparable group = 1:1) prevalence odds ratio of 2.5 in each age group when the variable (exposure) prevalence in comparable group is 0.10 (10%), the sample should be by age groups: 16–25 yrs – 2515, 26–35 yrs – 1240 and 36–44 yrs – 1435 persons. The total sample size 5190 guarantees that among responders there will be 340 sexually active women in each age group whose data will be further analyzed in the study. The program POWER, Epicenter Software, Pasadena, CA, USA was used for calculations.

A random sample stratified by age of women aged 16 to 44 years was obtained from the Estonian Population Registry. A survey package containing an information letter, a self-administered questionnaire and a pre-stamped, pre-addressed envelope was mailed to each participant. Survey participation was anonymous with a study code, being assigned to each study participant to prevent personal identification. The respondent sent the study code back to the research team separately from the questionnaire in the other pre-paid and pre-addressed envelope provided. Data were collected from May 2004 to February 2005. A total of 5190 questionnaires (by age groups: 2515 questionnaires among 16−24-year-old, 1240 questionnaires among 26−34-year-old and 1435 questionnaires among 35−49-year-old women, respectively), 3472 in the Estonian and 1718 in the Russian language, were posted. Of the sample, 95 women did not live at the address recorded in the population registry, one was dead and seven did not respond for health related reasons. For non-responders of the first mailing (n=3113), the questionnaire was sent for the second time after 10−12 weeks. Out of the 5087 potential respondents, 2335 did not return the questionnaire, 13 refused to answer, four questionnaires were completed unsatisfactorily. Total response rate was 53.8% (n=2735). The data are presented in the respective survey report [189].

5.1.3. Reproductive Health and Fertility Survey in St. Petersburg

In St. Petersburg, a different sampling and recruitment methodology was selected due to the absence of population registry, legal and other local circumstances. A random sample of study subjects was obtained from the database of the District Authority Police Department for the catchment areas of three outpatient clinics from two different districts (Krasnogvardeyskiy and Primorsky) out of 20, representative of St. Petersburg. The sample was stratified by age and by outpatient clinic. Total sample size was 2501 women (by age groups: 719 questionnaires among 18−24-year-old, 858 questionnaires among 26−34-year-old and 924 questionnaires among 35−49-year-old women, respectively). An initial invitation letter was mailed to women born between 1959−1985 (women aged 18−44). The letter contained information about the survey with an invitation to attend to a specified women's clinic to complete a self-administered questionnaire and have the opportunity to have an appointment with a gynecologist. A follow-up phone call was made to all potential respondents, during which, a second opportunity for a clinic or home visit was offered. For the 392 women who refused to visit the clinics, but indicated their interest to participate in the survey or for those who did not have a phone number, questionnaires were taken into their home by study researchers. Data were collected from November 2003 to October 2004. Study participation was anonymous. Of the 1719 eligible respondents (782 women were not located or reached), 572 refused to participate or contact was lost during the survey. Total response rate was 66.7%. The data are presented in the respective survey report [190].

Table 1. Description of the survey designs in Estonia and St. Petersburg

	Estonian Women's Health Survey	**Reproductive Health and Fertility Survey in St. Petersburg**
Data source	The Estonian Population Registry	The database of the District Authority Police Department
Sample frame	The whole Estonian female population aged 16–44 (n=289 830)	Women aged 18–44 for the catchment areas of three outpatient clinics from two districts of St. Petersburg (n=90 532)
Sample size	5190 – stratified by age (16−25, 26−35 and 36−44 years)	2501 – stratified by age (18−25, 26−35 and 36−44 years) and by outpatient clinic
Sampling	Age stratified random sample (16−25, 26−35 and 36−44 years)	Two stage sampling: (1) selection of outpatient clinics; (2) followed by the age stratified random sampling(18−25, 26−35 and 36−44 years)

	Estonian Women's Health Survey	Reproductive Health and Fertility Survey in St. Petersburg
Study desing	Cross-sectional postal survey	
Recruitment data collection	A study package was sent by mail. For non-responders of the first mailing the questionnaire was sent for the second time after 10−12 weeks	An invitation letter to attend to a specified women's clinic to complete a self-administered was mailed. A follow-up phone call was made to all potential respondents and questionnaires were taken to the homes of those who refused to visit the clinics, but indicated their interest to participate in the study, or for those who did not have a phone number
Measurement	A self-administered questionnaire	
Questionnaire	Adapted from Finnish studies (Raskaudenehkäisy1994; Health 2000; Finnriski 2002; National sex survey 1999).	
Data collection year	2003–2004	2004–2005
Response rate	53.8%	66.7%
Incentives	By lottery, three participants were awarded vouchers to get a 3-day health package (with a value of EUR 60)	A gift from a grocery store (with a value of EUR 5)
Ethical Committee's approval	The Ethics Review Committee on Human Research of the University of Tartu, Estonia (107/65 26.08.2002)	The Ethical Committee of St. Petersburg Medical Academy of Postgraduate Studies (N6 24.09.2003)

5.2. Main outcome measures, study subjects and statistical analysis methods used in research

5.2.1. The main outcome measures

The main outcome measures of the research described here were:
(1) change in the proportion of repeated induced abortions over the two observation periods,
(2) self report on contraceptive behaviour (use at the most recent sexual intercourse or prior to each abortion),
(3) contraceptive counselling (use of, preferred provider within the last 5 years, and satisfaction with services for the last visit) and
(4) intimate partner violence (within the last 12 months).

Induced abortion (paper I)

The following data about induced abortions was obtained from EAR for the periods of 1996–2003 and 2004–2011:
a) annual numbers of the induced abortions (together with the aggregated data on indication for the abortion: medical or on request of the women);
b) annual numbers of the live births; and
c) aggregated data on selected sociodemographic characteristics (age, ethnicity, educational level, marital status, occupation) for the women undergoing abortions.

In addition for the population based rates calculations population data on women aged 15–49 years for the periods of 1996–2003 and 2004–2011 was obtained from the Statistics Estonia.

Contraceptive behaviour (papers I,II,IV) and contraceptive counselling (paper III)

In paper I, contraception use prior to each abortion was assessed by asking: "What was the contraceptive method you used before becoming pregnant?" with the following response options on the Abortion Card: oral hormonal contraception, intrauterine contraception, condom, other, non-use, no data. Women could report several contraceptive methods, classification of method effectiveness was based on the most reliable method reported.

In paper II and IV contraceptive method during the most recent sexual intercourse was elicited: respondents could choose a contraceptive method from a list of different methods (appendix Q 70). Based on available data about the effectiveness of contraceptive methods [44], all respondents who had used the rhythm method, withdrawal method, spermicides or vaginal douching were considered as having used an unreliable contraceptive method; those who had used hormonal contraceptive pills, patches, injectable hormonal contraceptive (Depo-Provera), emergency contraceptive pill, condom or IUD (questionnaire did not distinguish between hormone-releasing IUS and copper IUD) or under-

gone sterilization were considered as having used a reliable contraceptive method. In the case of combined method use, the categorization of contraceptive method was based on the most reliable method reported.

In paper III, the use of, preferences for and satisfaction with friendliness, confidentiality, competence, and length of the visits for contraceptive counselling at different health care service institutions – a women's outpatient clinic, private gynaecological practices and general medical practices the last five years were measured based on participants self-reported assesments. Respondents rated their satisfaction with the last visit in every aspect on a four step scale: very satified, rather satisfied, rather unsatisfied, very unsatisfied (appendix Q 79). For data analysis, the bineary variable was created (satified or unsatisfied).

Intimate partner violence (paper IV)

IPV was defined as physical or sexual violence by an intimate partner during the last 12 months prior to the survey. Intimate partner was defined as current/former dating partner or husband (married or cohabiting). The violence module contained seven questions (appendix Q 107). An aggregate measure of violence was created, which was coded positive for respondents who reported either physical or sexual violence or both (IPV +) and negative (IPV –) if no exposure during the last year was reported.

5.2.2. Study subjects

Paper I
According to the data from EAR the total number of the women who had undergone an induced abortion in the period of 1996–2011 was (144 070): 105 938 abortions between 1996–2003 and 38 132 abortions between 2004–2011. Of those induced abortions 69% (105 758) were repeat abortions. According to the data from Statistics Estonia the total number of women aged 15–49 years in two time periods was 2 744 602 in 1996–2003 and 2 701 539 in 2004–2011.

The data on study subjects (numbers, inclusion and exclusion criteria) and subgroups formed for the analysis for the research in Papers II−IV are presented on the Figures 2 to 4.

Paper II
Data on study participants is presented on Figure 2. Of 3208 screened for inclusion to the analysis, data on 2478 were included.

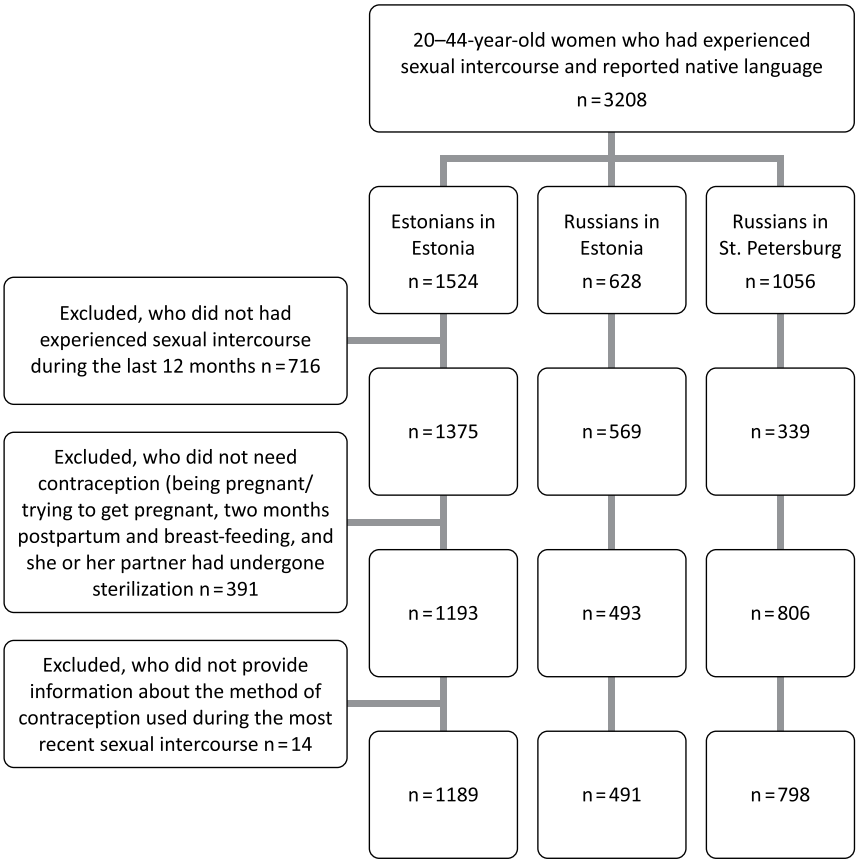

Figure 2. Study subjects formed for the analysis in Paper II.

Paper III

Data on study participants is presented on Figure 3. Of 866 screened for inclusion to the analysis, data on 835 were included.

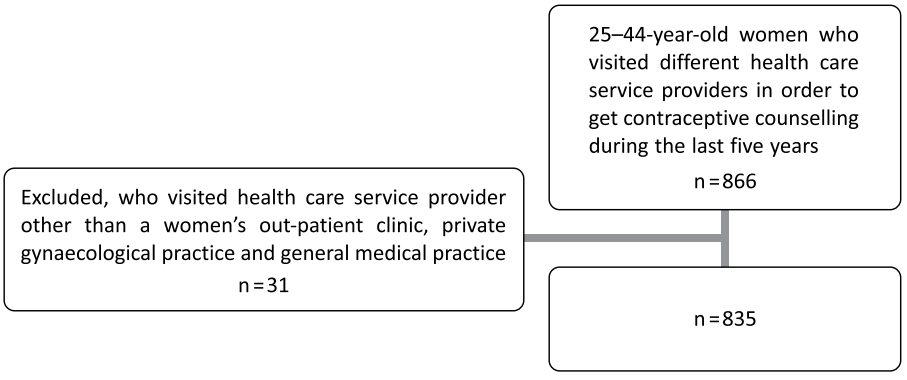

Figure 3. Study subjects formed for the analysis in Paper III.

Paper IV

Data on study participants is presented on Figure 4. Of 2533 screened for inclusion to the analysis, data on 1966 were included.

Figure 4. Study subjects formed for the analysis in Paper IV.

5.2.3. Statistical analysis

Creating variables for the analysis

The main independent variables in all papers used were self-reported socio-demographic characteristics, reproductive history, sexual and health-related risk factors.

Age was classified as follows: in paper I (≤19, 20–24, 25–29, 30–34, 35–39, 40–44, ≥45 years), in paper II (20−24, 25−34, 35−44 years), in paper III: women at the age of 25−44, and in paper IV (16−24, 25−34, 35−44 years). In paper III, the respondent age was restricted to 25–44 years because of special interest for contraceptive services for women who did not have access to special youth clinics and 20−44 years in paper II because the St. Petersburg database included only five women under the age of 20.

Nationality in paper I and **native language** in paper II–IV was used for categorization into different ethnic groups. In paper II only participants who

reported their native language either Estonian or Russian were included and defined as Estonians and Russians in Estonia.

Educational level was divided into four (paper I), two (paper II,III) or three (paper IV) which engaged the answer options: basic/less, secondary, secondary special, university.

Marital status was divided into four (paper I), two (paper II,III), three (paper IV) or based on answer options: married, cohabiting, divorced, separated, single.

Economical subsistence, which was assessed with the question "Do you have difficulties with paying bills, for housing, electricity, heating, etc?" (appendix Q 16) and the responses were dichotomised as follows: never/ sometimes and often/ always, was used in papers II–IV.

Occupation, divided as student, employed, unemployed and other, was used in I paper III.

Residency, used in paper III, divides into five biggest cities in Estonia (namely: Tallinn, Tartu, Pärnu, Kohtla-Järve, Narva) and other.

For reproductive history a combined variable was created to assess the interaction between history of births and abortions: no birth/no abortion, birth/no abortion, abortion/no birth, birth/abortion in paper II. In paper I and III number of lifetime births and abortions was used.

To define **sexual risk behaviour** the following variables were used in paper II: >1 sexual partner during the last year; ≥5 sexual partners during lifetime; contraception nonuse or the use of unreliable contraceptive methods during the first act of sexual intercourse; parallel relationships during present marriage/ cohabitation. Respondents were categorized as having high-risk sexual behaviour if at least three of these four conditions were met.

Smoking in paper II was divided into two categories: non-smoker and past/current smoker.

Self-rated health in paper III was assesed by the question: "How do you rate your current level of health?" (appendix Q 94) and divided by two categories: very good/good/neither good nor bad and bad/very bad.

Pregnancy intention in paper IV inquired about the most probable decision taken in case they got pregnant and the answer options were: would have a baby, would have an abortion, don't know (including missing answers).

Independent and dependent variables selected for the analysis

Information on the main outcome measures (dependent variable in the analysis) for the research presented in papers II–IV is provided in the Sections 7.1.2. and 7.1.3.

Table 2. Independent and dependent variables included in papers II–IV

Paper	Sociodemographic variables	Other independent variables	Dependent variables
II	Age, educational level, marital status, economical subsistence	Reproductive history, sexual risk behavior, smoking	Contraception non-use and the use of unreliable contraceptive methods during the most recent sexual intercourse among Estonians in Estonia, Russians in Estonia and Russians in St. Petersburg
III	Education, marital status, native language, economic subsistence, residency	Self-rated health, use of different contraceptive counselling service providers	Satisfaction with friendliness, confidentiality, competence, and length of the visit for contraceptive counselling
IV	Age, education, marital status, economical subsistence	Contraceptive method used during the most recent sexual intercourse; condom use ever; repeat induced abortions; lifetime sexually transmitted infections (HIV/STIs), dyspareunia	Experience of physical or sexual violence by an intimate partner during the last year

Statistical analysis methods

The data were analysed using the statistical package Stata 10.

Paper I

To characterise the trends in abortions and repeat abortions in Estonia in 1996–2011, the following measures were calculated:

1) the abortion rate and fertility rate (i.e. the annual number of induced abortions and live births, respectively, among women aged 15–49 years per 1,000 women in that age group using the mid-year female population estimates);
2) the abortion ratio (i.e. the annual number of induced abortions per 100 live births among women aged 15–49 years);
3) the age-specific abortion rates (i.e. the annual number of induced abortions among women in a specific age group per 1,000 women using the mid-year female population estimates in the same age group);

4) the total abortion rate (i.e. the sum of 5-year age-specific abortion rates for women aged 15–49 years, multiplied by 5, calculated for a period, using the age-specific rates for that period).

The period proportions (1996–2003 and 2004–2011) of women undergone repeat abortions by age groups were presented. The periods were choosen to better show the range and magnitude of changes in abortion statistics.

To assess the association of the repeat abortions we used sociodemographic factors collected by EAR. The percentages of women undergone repeat abortions were presented. For repeat abortion analysis all abortions for medical reasons were excluded (3334 [3.0%] during 1996–2003 and 1927 [2.8%] during 2004–2011).The percentage change (with 95% CIs) of repeat abortions within the selected sociodemographic subgroups has been calculated as a difference between respective observational periods (1996–2003 and 2004–2011) in the repeat abortions proportions divided by the proportion of specific subgroup in the first period.

The formula that has been used is as follows:

$$\text{Percentage change} = \frac{-(\%\text{ in first period 1996–2003}) - (\%\text{ in second period 2004–2011})}{\%\text{ in first period}}$$

The age distribution of 15–49 year olds women among women's population in Estonia and the distribution of repeat abortions among the respective age groups were presented for 1996–2003 and 2004–2011. Distribution of the second, third, fourth and subsequent induced abortions among Estonians and non-Estonians and contraceptive method used prior to abortion were presented during the two time periods.

Paper II

Age-standardized prevalence rates and 95% CIs for selected contraceptive methods in study groups were calculated using the European standard population. Exact binomial confidence intervals were calculated to compare the prevalence of different contraceptive methods in the age groups. Relative frequencies were used to describe sociodemographic, reproductive history and sexual and health-related characteristics of study respondents. AORs were calculated using age in model I and all variables (age, education, marital status, economic subsistance, reproductive history, high-risk sexual behaviour and smoking) in model II in a logistic regression model, made separately for each study group (Estonians, Russians in Estonia and Russians in St. Peterburg).

Paper III

Relative frequencies were used to describe sociodemographic, reproductive history and self reported health of study respondents by health care institution. The odds of satisfaction with friendliness, confidentiality, competence, and

length of the visit was assessed and expressed as an adjusted odds ratio (AOR) and its 95% confidence interval (95% CI) adjusted for all independent variables an calculated using the method of logistic regression.

Paper IV
Prevalence of physical and sexual IPV and both during the last 12 months was presented. Relative frequencies were used to describe sociodemographic and reproductive history characteristics of study respondents. Differences between respondents having and having not been exposed to IPV were tested by chi-square test. Sociodemographic factors that were statistically significantly related to IPV exposure (age, education, economic subsistence and language) were entered into five multivariate logistic regression models exploring associations between IPV exposure and selected sexual health outcomes (contraception nonuse; use of unreliable contraceptive method; having never used a condom; having a repeat induced abortion; lifetime STI/HIV; and dyspareunia). Associations are presented as crude odds ratios and AORs 95% CIs. Contraceptive method during the most recent sexual intercourse was presented by IPV exposure.

In papers II–IV, for categorical variables, descriptive statistics (absolute and relative frequencies) are presented. Descriptive statistics for sub-samples of interest, such as ethnic groups are also presented in paper II. Correlates for selected outcomes (dependent variables) were explored using the chi-square test for proportions, Fisher's exact test for small cell expected values (<5) and univariate logistic regression analysis. Multivariate logistic regression analysis to assess confounding and interaction between variables. All factors (Paper II, III) or factors with $p < 0.05$ (Paper IV) in univariable analysis were entered in a multivariable comparison. Crude odds ratios (OR) from univariable and adjusted odds ratios (AOR) from multivariable analysis together with 95% confidence intervals (CI) are presented.

6. RESULTS

6.1. Induced abortion in Estonia (paper I)

6.1.1. Trends on induced abortion

Figure 5 presents the trends relating to induced abortion rate, fertility rate and abortion ratio during 1996–2011. In 1996, the annual number of induced abortions was 16,887 equating to an abortion rate of 48.3 and abortion ratio of 128.7. In 2011, the respective figures were 6,689, 20.7 and 45.0, which represents a reduction in abortion rate of 57.1% and an abortion ratio of 65.0%. During the same time period, the total abortion rate dropped from 1.72 to 0.71. Alongside this consistent decline in the number of induced abortion, there was a 22.9% increase in fertility rate. The maximum number of abortions that any woman admitted to requesting was 30 in 1996 and 17 in 2011.

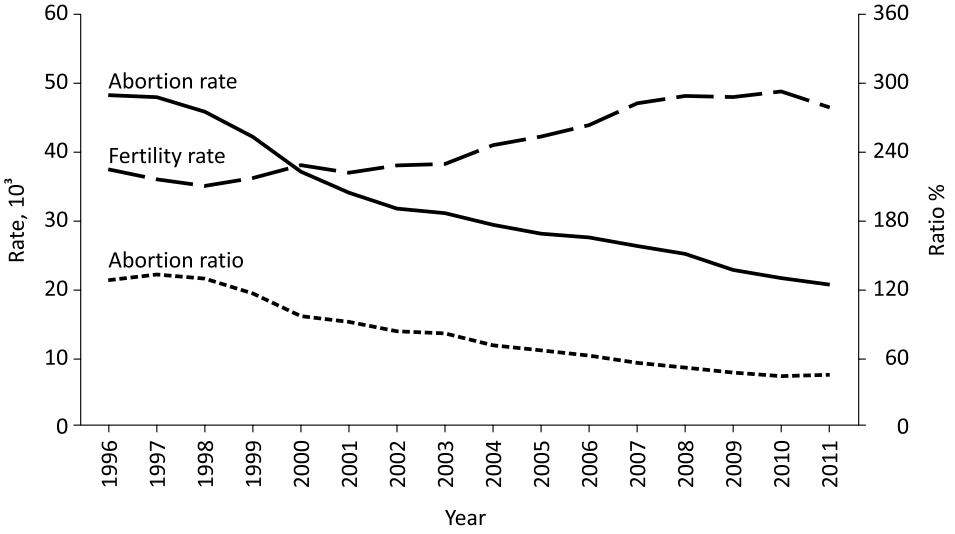

Figure 5. Fertility rate, induced abortion rate and ratio, Estonia, 1996–2011.

The distribution of age-specific induced abortion rates was similar in 1996 and 2011, whereas the abortion rates across all age groups markedly declined over the same period. Women aged 20–29 years accounted for approximately half of all induced abortion patients (49.4% in 1996 and 47.1% in 2011) showing the highest and steepest decline in abortion rates (65.3% among 20–24 year olds and 64.4% among 25–29 year olds) throughout the observed period. Teenagers' (≤ 19 years) induced abortions accounted for 12.3% of all induced abortions in 1996 and 9.7% in 2011 showing a decrease in abortion rate of 56.7%. A smaller decline in abortion rates was observed among older women (55.4% among 30–34 year olds; 47.3% among 35–39 year olds; 41.2% among 40–44 year olds).

6.1.2. Repeat abortion

For induced abortions on request, repeat abortions were obtained by 63.8% (n=67,626) of the women during 1996–2003 and 58% (n=38,132) during 2004–2011. In 1996–2003 and 2004–2011, 26% of the women were seeking their second abortion; 17.2% and 15.9% their third; 20.6% and 16.1% their fourth or higher-order abortion. Among the target population the proportion of 20–24 and 25–29 year olds women was higher in the second observational period, but the proportion of repeat abortion in these age groups was lower compared to 1996–2003 (Figure 6).

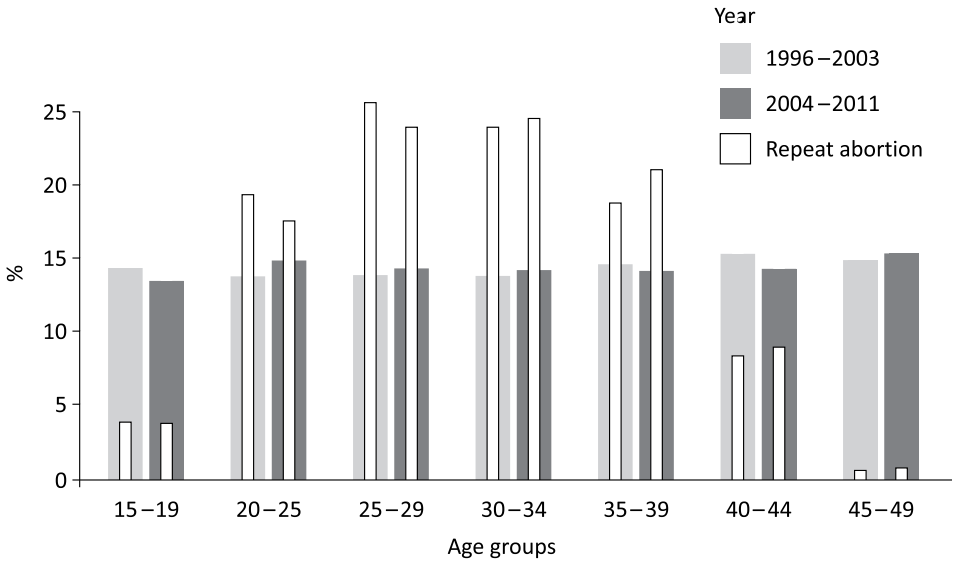

Figure 6. Age distribution of women aged 15–49 years among mid-year female population estimates in 1996–2003 and in 2004–2011, and proportions of repeat abortion among the respective age group in Estonia.

The proportion of women who underwent repeat abortions decreased across all the sociodemographic subgroups during the study period, but most significantly among women under 30 years of age, women with a university degree and nulliparous (Table 3). For women with a basic or less education and students the change was not statistically significant. The proportion of women with a basic or less education undergone repeat abortion increased from 7.7% in 1996 to 19.2% in 2011. Although the proportion of women undergone repeat abortion decreased within both ethnic groups during the study period, the proportion of women seeking fourth or subsequent abortion was two times higher among non-Estonians compared to Estonians (Figure 7).

Table 3. Percentage change and 95% confidence intervals (95% CI) of repeat abortions between two periods (1996–2003 and 2004–2011) within selected socio-demographic and parity subgroups in Estonia

Characteristic	Percentage change (95% CI)
Age (years)	
≤19	–14.6 (–19.4; –9.4)
20–24	–15.0 (–16.8; –13.1)
25–29	–10.4 (–11.8; –9.1)
30–34	–7.2 (–8.3; –6.0)
35–39	–6.3 (–7.4; –5.2)
40–44	–5.2 (–6.7; –3.7)
≥45	–6.1 (–11.1; –0.8)
Education	
University	–17.3 (–19.1; –15.5)
Secondary	–4.5 (–5.6; –3.3)
Secondary special	–6.1 (–7.3; –4.9)
Basic/less	–1.4 (–1.2; 4.1)
Ethinicity	
Estonian	–8.9 (–9.9; –7.9)
Non-Estonians	–7.7 (–8.7; –6.7)
Marital status	
Single	–2.4 (–4.3; –0.4)
Married	–6.8 (–7.8; –5.8)
Cohabiting	–3.7 (–5.0; –2.3)
Divorced/widow	–7.7 (–9.6; –5.7)
Occupation	
Student	–3.1 (–8.0; 2.0)
Employed	–7.7 (–8.5; –6.9)
Unemployed	–8.9 (–11.3; –6.5)
Other	–3.4 (–4.9; –1.8)
Parity	
0	–15.7 (–18.3; –13.0)
1	–8.1 (–9.2; –7.0)
2+	–4.5 (–5.3; –3.7)

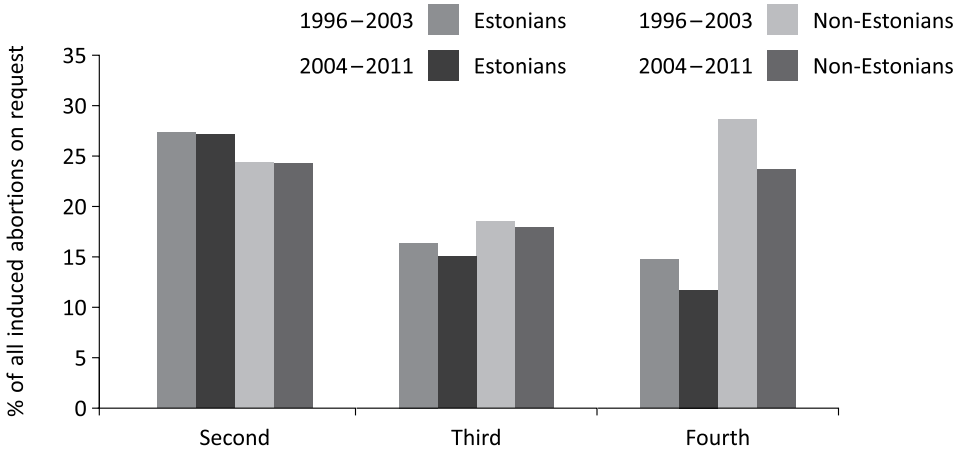

Figure 7. Distribution of the second, third, fourth and subsequent among all induced abortions on request among Estonians and non-Estonians in 1996–2003 and 2004–2011.

6.2. Contraception (papers I–III)

6.2.1. Contraception prior to abortion (paper I)

Contraceptive nonuse prior to abortion was reported by more than half of women having an abortion; while the failed use of contraceptive pills and intrauterine contraception was low at the time of first, second, third or fourth or subsequent abortions (Table 4). Condom was the most frequently reported failed contraceptive method prior to all abortions during 2004–2011, and prior to a first or second abortion in 1996–2003. For women undergone their third, fourth or subsequent abortion during 1996–2003, the most frequently reported contraceptive methods were classified as "other" (rhythm method, withdrawal, spermicides). Within each time period, the proportion of women using "other" contraceptive methods increased as the number of abortions obtained increased, but overall, there was a decrease in the use of these methods over the 16-year period.

Table 4. Contraceptive use (%) prior to abortion among women obtaining the first, second, third and fourth or higher-order abortion in Estonia in 1996–2003 and 2004–2011

Contraceptive method	1996–2003				2004–2011			
	N=105 938				N=65 735			
	1st	2nd	3rd	4th+	1st	2nd	3rd	4th +
Non-use	58.5	55.5	54.5	54.7	65.5	63.8	65.0	65.3
Pill	4.1	5.6	5.1	4.6	5.1	6.1	6.0	5.2
IUD	2.4	2.7	2.9	2.2	1.5	1.6	1.6	0.9
Condom	18.4	16.3	15.7	14.3	18.1	15.6	14.1	13.4
Other	12.0	15.8	17.4	20.3	7.3	10.2	11.0	13.1
Missing	5.4	5.2	5.5	5.2	3.0	3.2	2.8	2.8

6.2.2. Contraceptive behaviour in Estonia and St. Petersburg (paper II)

Description of study subjects

Respondents' background characteristics are presented in Table 5.

Table 5. Distribution of selected characteristics of 20–44-year-old women in Estonia and in St. Petersburg (Russia), n (%)

Characteristic	Estonians in Estonia	Russians in Estonia	Russians in St. Petersburg
Total	1189 (100)	491 (100)	798 (100)
Sociodemographic			
Age			
20–24	411 (34.6)	172 (35.0)	177 (22.2)
25–34	396 (33.3)	159 (32.4)	268 (33.6)
35–44	382 (32.1)	160 (32.6)	353 (44.2)
Marital status			
Married	372 (31.3)	212 (43.2)	402 (50.4)
Cohabiting	464 (39.0)	126 (25.7)	117 (14.7)
Single	205 (17.2)	106 (21.6)	175 (21.9)
Other	143 (12.0)	45 (9.2)	98 (12.3)
Missing	5 (0.4)	2 (0.4)	6 (0.8)
Education			
University	299 (25.1)	126 (25.7)	274 (34.3)
Secondary special	438 (36.8)	212 (43.2)	313 (39.2)
Secondary	386 (32.5)	126 (25.7)	190 (23.8)
Basic/less	62 (5.2)	24 (4.9)	17 (2.1)
Missing	4 (0.3)	3 (0.6)	4 (0.5)

Characteristic	Estonians in Estonia	Russians in Estonia	Russians in St. Petersburg
Difficulties with paying bills			
Never	284 (23.9)	112 (22.8)	184 (23.1)
Sometimes	717 (60.3)	243 (49.5)	432 (54.1)
Often/always	172 (14.5)	133 (27.1)	169 (21.2)
Missing	16 (1.3)	3 (0.6)	13 (1.6)
Reproductive history			
Birth			
No	435 (36.6)	156 (31.8)	234 (29.3)
Yes	754 (63.4)	334 (68.0)	564 (70.7)
Missing	–	1 (0.2)	–
Abortion			
No	684 (57.5)	226 (46.0)	331 (41.5)
Yes	505 (42.5)	264 (53.8)	467 (58.5)
Missing	–	1 (0.2)	–
Sexual and health risk factors			
Number of sexual partners during last year			
1	911 (76.6)	344 (70.1)	610 (76.4)
>1	247 (20.8)	123 (25.1)	152 (19.0)
Missing	31 (2.6)	24 (4.9)	36 (4.5)
Number of sexual partners during lifetime			
<5	652 (54.8)	243 (49.5)	426 (53.4)
≥5	483 (40.6)	206 (42.0)	283 (35.5)
Missing	54 (4.5)	42 (8.6)	89 (11.2)
Parallel relationship during present marriage/cohabitation			
No	713 (60.0)	259 (52.7)	503 (63.0)
Yes	173 (14.6)	98 (20.0)	157 (19.7)
No present marriage/cohabitation	288 (24.2)	119 (24.2)	127 (15.9)
Missing	15 (1.3)	15 (3.1)	11 (1.4)
Contraceptive method during the first intercourse			
Reliable	386 (32.5)	149 (30.3)	230 (28.8)
Unreliable	410 (34.5)	152 (31.0)	230 (28.8)
Contraception nonuse	365 (30.7)	175 (35.6)	317 (39.7)
Missing	28 (2.4)	15 (3.1)	21 (2.6)
Smoking			
Never	643 (54.1)	189 (38.5)	322 (40.4)
Past smoker	192 (16.1)	88 (17.9)	117 (14.7)
Current smoker	348 (29.3)	212 (43.2)	351 (44.0)
Missing	6 (0.5)	2 (0.4)	8 (1.0)

Prevalence of contraceptive methods in Estonia and St. Petersburg

The use of unreliable contraceptive methods were widespread in all study groups, but significantly lower among Estonians (20.4%; 95% CI 18.0–22.8) compared to Russians in Estonia (33.8%; 95% CI 29.4–38.2) and in St. Petersburg (31.4; 95% 28.1–34.7) (Figure 8). A remarkable proportion of respondents in St. Petersburg (7.7%) and Russians in Estonia (3.4%) considered vaginal douching to be a contraceptive method. Among Russians in Estonia and in St. Petersburg, the most prevalent method used at the most recent sexual intercourse was using condom (respectively 30.3% and 41.3%), followed by the withdrawal method (21.8% and 18.2%) (Figure 9). The use of withdrawal and rhythm methods showed contrasting trends with respect to age in all study groups (Table 6). Hormonal contraceptive methods, of which more than 98% were contraceptive pills, had been used significantly more frequently by Estonians (29.1%), while condoms were used more frequently by respondents in St. Petersburg and Russians in Estonia. Use of contraceptive pills and condom decreased with age in all study groups, but among Russians in St. Petersburg condom use was still relatively high in older age groups. IUD use showed an increasing trend with age in all countries, but was used almost three times more frequently in Estonia compared to respondents in St. Petersburg. Use of a combination of different contraceptive methods was reported by 14.1% of Estonians, 27.1% of Russians in Estonia and 22.4% of women in St. Petersburg. The most common combinations were the pill plus condom among Estonians, withdrawal plus rhythm methods among Russians in Estonia and withdrawal method plus condom in St. Petersburg.

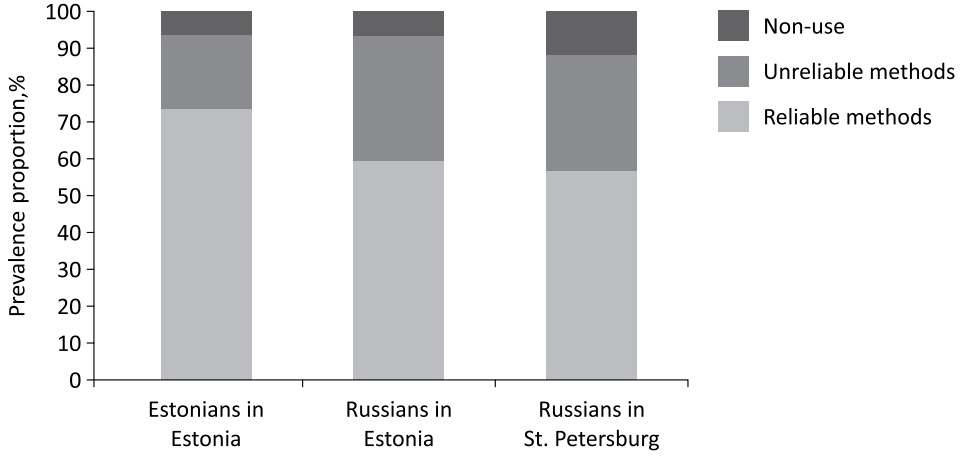

Figure 8. The prevalence of contraceptive nonuse, use of unreliable and reliable contraceptive methods among Estonians in Estonia, Russians in Estonia and Russians in St. Petersburg, 2004.

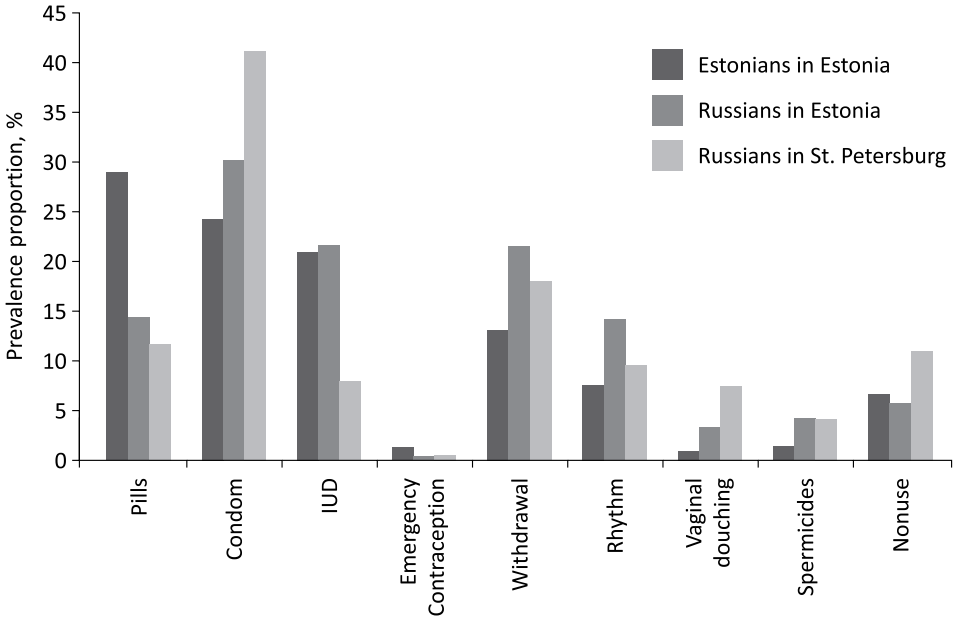

Figure 9. The prevalence of different contraceptive methods among Estonians in Estonia, Russians in Estonia and Russians in St. Petersburg, 2004.

Table 6. Contraceptive prevalence rates (%) and 95% confidence interval (CI) among 20–44-year-old women by age group in Estonia and in St. Petersburg (Russia), 2004

Study group/ Contraceptive method	Prevalence proportion (95% CI)			
	20–24	25–34	35–44	Total[a]
Estonians in Estonia				
Reliable methods	77.6 (73.2–81.6)	73.5 (68.8–77.8)	69.6 (64.8–74.2)	73.7 (70.1–75.4)
Pills	46.0 (41.1–50.9)	27.8 (23.4–32.5)	22.0 (17.9–26.5)	29.1 (26.5–31.7)
Condom	33.1 (28.6–37.9)	27.8 (23.4–32.5)	16.5 (12.9–20.6)	24.4 (21.9–26.9)
IUD	2.4 (1.2– 4.4)	21.5 (17.5–25.8)	30.4 (25.8–35.2)	21.1 (18.6–23.6)
Emergency contraception	0.2 (0.0– 1.3)	1.3 (0.4– 2.9)	2.4 (1.1– 4.4)	1.5 (0.8– 2.3)
Unreliable methods	18.2 (14.6–22.3)	21.7 (17.8–26.1)	20.2 (16.2–24.5)	20.4 (18.0–22.8)
Withdrawal	15.6 (12.2–19.4)	14.9 (11.5–18.8)	10.5 (7.6–14.0)	13.2 (11.3–15.2)
Rhythm	4.1 (2.4–6.5)	7.6 (5.2–10.6)	9.9 (7.1–13.4)	7.8 (6.2–9.4)
Vaginal douching	1.0 (0.3–2.5)	1.0 (0.3–2.6)	1.6 (0.6–3.4)	1.2 (0.6–1.9)
Spermicides	0.2 (0.0–1.3)	1.3 (0.4–2.9)	2.6 (1.3–4.8)	1.6 (0.8–2.4)
Non-use	4.1 (2.4–6.5)	4.8 (2.9–7.4)	10.2 (7.4–13.7)	6.9 (5.4–8.4)
Russians in Estonia				
Reliable methods	62.2 (54.5–69.4)	60.4 (52.3–68.0)	59.4 (51.3–67.1)	60.1 (55.6–64.7)
Pills	19.8 (14.1–26.5)	18.2 (12.6–25.1)	8.1 (4.4–13.5)	14.4 (11.3–17.6)
Condom	40.7 (33.3–48.4)	27.7 (20.9–35.3)	27.5 (20.7–35.1)	30.3 (26.1–34.5)
IUD	6.4 (3.2–11.2)	22.6 (16.4–29.9)	28.8 (21.9–36.4)	21.7 (17.8–25.6)
Emergency contraception	–	0.6 (0.0–3.5)	0.6 (0.0–3.4)	0.5 (0.0–1.1)
Unreliable methods	34.3 (27.2–41.9)	36.5 (29.0–44.4)	30.6 (23.6–38.4)	33.8 (29.4–38.2)
Withdrawal	29.1 (22.4–36.5)	25.2 (18.6–32.6)	15.0 (9.9–21.5)	21.8 (18.0–25.5)
Rhythm	8.1 (4.5–13.3)	12.6 (7.9–18.8)	18.8 (13.0–25.7)	14.3 (11.0–17.6)
Vaginal douching	7.0 (3.7–11.9)	2.5 (0.7–6.3)	2.5 (0.7–6.3)	3.4 (1.8–4.9)
Spermicides	1.2 (0.1–4.1)	5.7 (2.6–10.5)	4.4 (1.8–8.8)	4.4 (2.4–6.4)
Non-use	3.5 (1.3–7.4)	3.1 (1.0–7.2)	10.0 (5.8–15.7)	6.0 (3.8–8.3)
Russians in St. Petersburg				
Reliable methods	66.1 (58.6–73.0)	62.3 (56.2–68.1)	47.9 (42.6–53.2)	57.5 (54.1–61.0)
Pills	19.8 (14.2–26.4)	13.1 (9.3–17.7)	7.1 (.6–10.3)	11.8 (9.6–14.1)
Condom	46.9 (39.4–54.5)	48.1 (42.0–54.3)	30.6 (25.8–35.7)	41.3 (37.9–44.8)
IUD	1.7 (0.4–4.9)	5.2 (2.9–8.6)	14.2 (10.7–18.2)	8.1 (6.2–9.9)
Emergency contraception	0.6 (0.0–3.1)	0.4 (0.0–2.1)	1.1 (0.3–2.9)	0.7 (0.1–1.2)
Unreliable methods	24.3 (18.2–31.3)	31.7 (26.2–37.7)	33.7 (28.8–38.9)	31.4 (28.1–34.7)
Withdrawal	20.9 (15.2–27.6)	20.5 (15.6–25.9)	13.9 (10.4–17.9)	18.2 (15.4–20.9)
Rhythm	2.3 (0.6–5.7)	8.2 (5.2–12.2)	14.4 (11.0–18.6)	9.8 (7.7–11.9)
Vaginal douching	5.1 (2.4–9.4)	6.7 (4.0–10.4)	10.5 (7.5–14.2)	7.7 (5.9–9.6)
Spermicides	2.8 (0.9–6.5)	6.0 (3.5–9.5)	3.1 (1.6–5.5)	4.4 (2.9–5.9)
Non-use	9.6 (5.7–14.9)	6.0 (3.5–9.5)	18.4 (14.5–22.9)	11.1 (9.0–13.2)

Factors associated with contraception nonuse or the use of unreliable contraceptive methods among different ethnic groups

Multivariate logistic regression analysis adjusted for age, marital status, education, economic subsistence, reproductive history, high-risk sexual behavior and smoking showed that Estonians in older age groups (AOR 2.20; 95% CI 1.41−3.41), those who had difficulties with paying bills (AOR1.64; 95% CI 1.14−2.37), had high-risk sexual behavior (AOR 1.44; 95% CI 1.00−2.08) and past or current smokers (AOR 1.42; 95% CI 1.07−1.89) were at a higher risk of an unmet need for contraception. The same pattern was not observed among Russians in Estonia and respondents in St. Petersburg. Previous childbirth and abortion were associated with decreased odds of unmet need for contraception among Estonians (AOR 0.50; 95% CI0.31−0.81) and elevated odds (AOR1.99; 95% CI 1.17−3.40) among respondents in St. Petersburg. Abortion experience alone was positively correlated with unmet need for contraception among Russians in Estonia (AOR 2.94; 95% CI 1.25−6.95).

6.2.3. Contraceptive counselling in Estonia (paper III)

61% of women aged 25–44 years had visited some health care institution for contraceptive counselling during the five years prior the survey. The majority of respondents visited (74%) and preferred (67%) the contraceptive counselling provided by a gynaecologist in a women's out-patient clinic; the remainder had made use of and preferred private gynaecological practices (17% and 17%, respectively) and general medical practices (9% and 7%). At least 81% of the respondents were satisfied with all studied aspects of care in the different types of service providers (Figure 10). The women who visited health care institution preferred by them and who had higher self-rated health were significantly more satisfied with contraceptive care. The respondents who reported their native language other than Estonian were less satisfied with friendliness and competency. Living outside five big cities in Estonia was positively correlated with the satisfaction with the length of visit. Women were more likely to be satisfied with friendliness, confidentiality, competence and the length of the visit in other types of service providers compared with women's out-patient clinics; the relation was statistically significant for the length of visit (AOR 2.84 95% CI 1.31–6.18) and confidentiality (AOR 2.44 95%CI 1.05–5.67) in private gynaecological practices, and for the length of visit in general medical practices (AOR 5.97 95% CI 1.38–25.82).

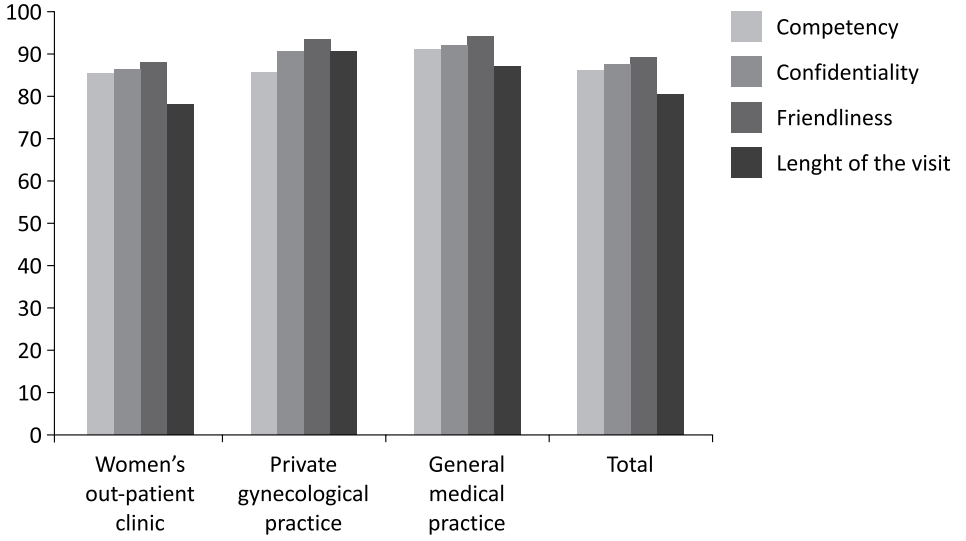

Figure 10. Satisfaction with competency, confidenciality, friendliness and lenght of the visit in different health care services providing contraceptive counselling in Estonia, 2004 (%).

6.3. Intimate partner violence in Estonia (paper IV)

6.3.1. Prevalence of intimate partner violence

Out of 1,966 respondents, 362 (18.4%; 95% CI 16.7–20.2) women reported physical or sexual IPV or both during the last 12 months. The most common type of IPV was physical violence 17.2% (95% CI 15.6–19.0) of all respondents and 93.6% (95% CI 90.6–95.9) of IPV survivors), followed by sexual violence 4.1% (95% CI 3.2–5.0) and 22.1% (95% CI 17.9–26.7), respectively), 1.8% (95% CI 1.2–2.5) of all respondents and 9.7% (95% CI 6.8–13.2) of IPV survivors had been exposed to both types of violence.

Out of 1,966 respondents, 362 (18.4%) women reported physical or sexual IPV or both during the last 12 months. The most common type of IPV was physical violence (17.2% of all respondents and 93.6% of IPV survivors), followed by sexual violence (4.1% and 22.1%, respectively), 1.8% of all respondents and 9.7% of IPV survivors had been exposed to both types of violence (n=35). In table 7, prevalence estimates of different types of IPV are presented. Factors associated with IPV exposure were younger age ($p \leq 0.05$), lower educational level ($p \leq 0.01$), non-Estonian ethnicity ($p \leq 0.01$) and lower economical subsistence ($p \leq 0.01$). In the IPV exposure group more women had had induced abortions, but the number of births was similar in the two study groups.

Table 7. Intimate partner violence (IPV) during the last 12 months grouped according to type of violence in Estonia, 2004

Type of IPV violence	Percentage of all respondents (95% CI)	Percentage of IPV survivors (95% CI)
Threatened with physical violence	8.1 (6.9–9.4)	43.9 (38.7–49.2)
Pushed, shaken, had something thrown	14.2 (12.7–15.9)	77.3 (72.7–81.6)
Hit with something that caused/could have caused physical injury	5.2 (4.3–6.3)	28.5 (23.9–33.4)
Threatened with a knife/gun/other object	1.0 (0.6–1.6)	5.5 (3.4–8.4)
Physically forced to have sexual intercourse	1.7 (1.2–2.4)	9.4 (6.6–12.9)
Threatened/frightened into having sexual intercourse	1.1 (0.7–1.6)	5.8 (3.6–8.7)
Forced to participate in other sexual acts	2.1 (1.5–2.9)	11.6 (8.5–15.4)

6.3.2. Intimate partner violence and selected sexual health outcomes

A vast majority of the respondents reported using some contraceptive method during their most recent sexual intercourse. The pattern of contraceptive use differed by IPV exposure – reported use of hormonal contraceptive methods and condom was lower and contraceptive nonuse and the use of unreliable contraceptive methods was higher among the respondents exposed to IPV compared to those who had not been exposed to IPV (Table 8).

Table 8. Use of contraceptive method (%) at the most recent intercourse by a respondent exposed to intimate partner violence during the last 12 months in Estonia, 2004*

Contraceptive method	IPV+ n=362	IPV− n=1604
Hormonal methods	19.6	25.9
IUD	16.0	15.1
Condom	17.7	24.9
Sterilisation	0.3	0.9
Emergency contraception	0.6	1.2
Unreliable methods	27.9	20.3
None	8.6	5.1
Missing	0.0	0.5

*Respondents could report several contraceptive methods; classification of method effectiveness was based on the most reliable method reported.

Multivariate logistic analysis showed that IPV during the last 12 months, before and after adjustment for potential confounders (age, education, economic subsistence, ethnicity), was significantly associated with adverse sexual health outcomes. The risk for contraception nonuse (AOR 2.02; 95% CI 1.44−2.82); use of unreliable contraceptive method (AOR 1.54; 95% CI 1.16−2.04); having never used a condom (AOR 1.53; 95% CI 1.12−2.10); having a repeat induced abortion (AOR 1.72; 95% CI 1.24−2.37); STI/HIV (AOR 2.05; 95% CI 1.56−2.68); and dyspareunia (AOR 2.14; 95% CI 1.65−2.77) was significantly higher among IPV survivors.

A significant difference was found between the two study groups regarding intentions in the hypothetical case of pregnancy. More IPV exposed women, compared to the non-exposed ones, reported that they would opt for an abortion (26.2% vs. 22.1%, $p<0.001$) or expressed ambivalence about the decision (34.8% vs. 26.3%, $p<0.001$). The proportion of respondents who did not use contraception because they were planning pregnancy was higher among IPV exposed group compared to the respondents with no IPV exposure (27.9% vs. 20.3%, $p<0.001$).

7. DISCUSSION

To the author's knowledge this series of studies is the first in Estonia to document data on significant health indicators for the SH domains of respect of sexual rights to have a safe, pleasurable sexual life and fertility regulation.
The results show a considerable decline in the number of induced abortions and a slow decline in the number of repeat abortions performed in Estonia over the period of 1996–2011. Although satisfaction with contraceptive counselling in health care was high, results suggest a high unmet need for contraception among many women, especially those of an ethnic minority group. The high prevalence of IPV violence was an important contributor to sexual risk behaviour and adverse sexual health outcomes among women of childbearing age.

7.1. Trends of induced abortion and repeat abortion

Over the 16-year study period of 1996–2011 there was a reduction in the overall abortion rate and a consistent decline in repeat abortions in Estonia. Today, every third pregnancy in Estonia ends with induced abortion. The abortion rate and the number of repeat abortions, and especially the number of third and higher-order abortions, is high compared with many other developed countries. For instance, in 2011, among all induced abortions, the proportion of women undergoing fourth and subsequent abortions was 17.9% in Estonia, compared to 5.6% in Sweden and <1% in England and Wales [70,72]. A high percentage of women who have undergone repeat abortions reflect a high historical abortion rate. Currently, the highest percentage of women undergoing repeat abortions are those in their 30s and 40s who have either had several abortions in their lifetime, or had a greater number of repeat abortions when younger. Thus, it can be assumed that when older cohorts of women "age out" of their reproductive years, a more rapid decline in the number of repeat abortions is likely to happen in future years. This hypothesis is also supported by evidence that the overall decline in abortion rate observed during the study period was mainly attributed to younger cohorts who have shown a higher acceptance of effective contraceptive methods than older women. Moreover, despite the increased proportion of women aged 20–29 in the population during the study periods, the proportion of repeat abortions among this age group decreased. The peak abortion rate was consistently observed among women aged 20–24, but over the 16-year period, the peak fertility rate had shifted to women aged 25–35 [11]. The traditional Western European pattern, where unintended pregnancies are terminated before childbearing is started, can already be seen in Estonian abortion trends. The average age of mothers at first births increased from 23.1 in 1996 to 26.3 in 2011. A comparision of the two periods shows that in 1996–2003, 45.9% and in 2004–2011, 47.1% of all abortions were obtained by nulliparous women. To interpret this small change, it is important to consider that in Western Europe

the increase of the age of mothers has lasted for a longer period of time. However, until today, 90% of women undergoing repeat abortions already had children. The finding that the percentage of women undergoing repeat abortions did not decrease over the 16 years among women with low educational attainment and students indicates an unmet need for contraception among these subgroups. Non-Estonians were overrepresented among the women obtaining repeat abortions in 1996 and in 2011 (46% and 38.7%, respectively). However, the decrease in repeat abortions among non-Estonians was almost comparable with that among Estonians, while the percentage of non-Estonians obtaining third or higher-order abortions remained markedly higher than that of Estonians. One explanation is that Russian-speaking women tended to prevent unintended pregnancies by using less reliable contraceptive methods and, in contrast to Estonians, having an abortion increased the risk of them not using contraception afterwards.

Contraceptive patterns before pregnancy termination have been explored in a number of studies [97, 191–194] and the variations reflect differences in overall contraceptive patterns across countries. The proportion of women who did not use any contraception prior to their first, second, third, fourth or subsequent abortion, accounted for more than half of the overall population in our study; while this increased over the 16-year period, the use of unreliable contraceptive methods decreased. Our findings about pre-abortion contraception contrast with data from other studies from developed countries where the majority of women obtaining their first or repeat abortion failed to use contraception at the time of conception [191–195]. This may be due to variations in study design or it may reflect different contraceptive patterns, but it is likely to be influenced by a high overall abortion rate.

7.2. Contraceptive behaviour and contraceptive counselling

Despite a notable increase in the use of hormonal contraceptive methods during the last two decades, due to the availability of a wide choice of modern contraceptive methods [196], a sizable proportion of women in Estonia still rely on contraceptive methods with limited efficacy. In addition to their low efficacy in protecting from unintended pregnancy, studies have shown that these methods are those used most inconsistently [197]. The current studies found substantial differences between the groups of women studied (Estonians and Russians in Estonia; and Russians in St. Petersburg) in terms of the prevalence of reported use of different contraceptive methods. The unmet need for contraception was higher among Russians than Estonians and the largest gap between the two ethnic groups occurred in the use of hormonal methods. Already in the early 1990s, Anderson et al. hypothesized that a switch from unreliable to reliable contraception among Estonians was more likely to be accomplished than a change from abortion to the use of reliable contraception among Russians [198]. In Russia, the very low use of hormonal contraceptive methods has not increased

during the last decades [63,64]. In comparison between women of the same ethnic origin, nonuse of contraceptive methods, e.g., the use of vaginal douching, was more prevalent in St. Petersburg – almost one in five of the women in St. Petersburg did not use contraception – while Russians in Estonia relied more on rhythm method and withdrawal than their Estonian counterparts. The high proportion of condom use among Russian women in Estonia and in St. Petersburg may be partly explained by an increased HIV awareness generated by the epidemiological situation in both countries – Estonia and Russia have witnessed very similar HIV epidemics with respect to timing, drivers, and magnitude [199]. The HIV prevalence is highest in the regions in Estonia where the Russian-speaking population predominates. Furthermore, there were more similarities, with respect to the trends in factors associated with unmet need for contraception, between Russians in Estonia and in St. Petersburg, than with Estonians. From factors associated with the non-use or use of unreliable contraceptive methods, the unmet need for contraception related to certain sociodemographic characteristics was a component of high-risk health behavior among Estonian women, unlike among the Russian-speaking women in Estonia and St. Petersburg. According to the literature, ethnic groups are often associated with patterns of contraceptive behaviour [98,199,201]. For Russians, there must be other barriers and more complex determinants that influence contraceptive choice, which our study did not capture. In addition to women's sociodemographic characteristics and health behaviour, the complex web of factors that influence contraceptive choice includes culturally mediated values, beliefs, and behaviours regarding contraceptive use and the extent to which one's attitudes, values, beliefs and behaviours change as a result of exposure to contextual factors of a particular country [202]. Despite the differences in the social and health care systems of the two countries, our investigations indicate that Russians in Estonia were more similar to Russians living in St. Petersburg than to their Estonian compatriots with respect to their contraceptive behaviour. Estonian society is segregated according to ethnicity across a number of dimensions: language, work and geography [30]. Only 41% of ethnic minorities speak Estonian at an elementary level or higher and insufficient knowledge of language is an important obstacle to interethnic communication [31]. The difference in the contraceptive patterns of the two ethnic groups in Estonia may be due the segregation of Estonian-speaking and Russian-speaking communities, including different information sources such as media channels and peers. This affects not only patients, but also medical professionals – discrepancies in patterns in the countries surveyed may, to some degree, be explained by the influence of health care systems. Evidence suggests that contact with health care services in connection with pregnancy often triggers a discussion on contraception and increases motivation for the use of effective methods [201]. According to study data, this positive influence has been seen only among Estonians – since we found that previous pregnancy and abortion were positively associated with the use of reliable contraceptive methods among Estonians. In

contrast, the Russian women in Estonia who had undergone abortion had elevated risk for later contraceptive non-use and use of unreliable contraceptive methods. Among the respondents in St. Petersburg, the likelihood of using reliable contraceptive methods decreased after abortion and after giving birth. These findings might be explained by pre- or postabortion and postpartum contraceptive counselling in which family planning issues were not sufficiently addressed, or because the information provided about reliable contraceptive methods did not encourage a change in contraceptive behavior. Perlman and McKee described the changes relating to this association in Russia between 1994 and 2003, and claimed that the discussion of contraceptive issues as part of postnatal care had been seen as less important [62]. The steep decline of IUD use in Russia, especially in metropolitan areas such as St. Petersburg, might also have been influenced by health care providers. According to the literature, Russian gynaecologists perceived IUDs as one of the most suitable contraceptive methods in earlier times [64,202]. According to a recent qualitative study, Larivaara [203] reported that currently, gynaecologists in St. Petersburg considered the IUD to be a problematic choice, even for married women, because of fear of infidelity by their husbands and, consequently, the risk of STI/HIV. Moreover, counselling approaches that mobilize a patient's own decision and implement her intentions have been associated with successful contraceptive adherence [204,205]. Larivaara reported that gynaecologists in St. Petersburg seldom discuss women's wishes or uncertainties during contraceptive counselling [203]. In light of these results, it is interesting that the respondents in Estonia and St. Petersburg assessed satisfaction with different aspects of contraceptive counselling in health care differently. Satisfaction with contraceptive counselling from all service providers in Estonia was comparable to the satisfaction reported in Finland but remarkably higher than in St. Petersburg where less than half of respondents were satisfied with different aspects of the contraceptive counselling they received [190,206]. Despite the high acceptance of family medicine as a contraceptive counselling provider in Estonia [133], women most frequently prefered and sought contraceptive counselling from gynaecologists either in women's out-patient clinics or private practices in Estonia. However, the satisfaction with different aspects of care was higher in family doctors practices than in women's outpatient clinics. Although, there is a risk that primary care clinicians have only a short time with patients and must address multiple health issues in that window of opportunity [207], our study results showed that respondents who had visited a general medical practice were more satisfied with the time spent on the visit than those who had visited other health care institutions. The high satisfaction level with the service provided by family doctors observed in this study shows that the preference of, access to and satisfaction with the services of a health care institution are only prerequisites for visiting them and other factors may affect the actual visit of a patient. One may assume that awareness of the fact that contraception counselling falls into the area of competence of a family doctor affects the

decision to visit. Although the present study does not allow us to evaluate all factors, one can imagine that the high proportion of women visiting gynaecologists is both rooted in the traditions and affected by the opportunity to have an appointment without a referral from a family doctor.

The lack of comprehensive contraceptive counselling in Estonia in the process of abortion care is a missed opportunity: our survey found that only 24.0% of Estonian women reported receiving pre- or post-abortion contraceptive counselling [189]. In contrast, in France, 79.6% of women reported that they had received information about contraception before or after abortion [192]. Although there is no robust evidence that contraceptive counselling improves contraceptive adherence [206, 209], there are data to support the fact that having contraception choice empowers women to make their own decisions and, even if made during the abortion process, it is important in preventing unintended pregnancies in the future [204,191,192]. Immediate initiation of any contraceptive method after abortion, but especially LARC, has been linked to a lower risk of repeat abortion [191].

7.3. Intimate partner violence and selected sexual health oucomes

Population-based studies with a similar design have shown lower one-year physical and sexual IPV prevalence than that found in Estonia: in Eastern European countries such as Poland and the Czech Republic, 3% and 9%, respectively, in New Zealand's urban areas, 5.2%, in Norway, 5.5% and in Canada, 3% [14,157,209,210]. There might be several reasons for the high prevalence of IPV in Estonia. First, some violence studies do not include threats of violence or some levels of violence (pushing, shaking, throwing things), which were the most common types of violence reported in our study. Futhermore, the relatively low mean age of respondents (29.4 years) might have influenced the overall IPV prevalence. Nevertheless, it should be taken into consideration that violence is universally underreported and more likely so in countries with a widespread cultural pressure to keep violence "behind closed doors and in the family circle" [164,211]. Despite several contextual differences, higher prevalence of IPV may be linked to the relatively high prevalence of general violence in Estonian society: Estonia has by far the highest incidence of homicides in the European Union per 100,000 inhabitants [28].

Younger women, non-Estonians, women with low educational attainment and with economic difficulties were the most vulnerable subgroups for IPV in Estonia. IPV was associated with adverse sexual health outcomes such as contraceptive non-use, use of unreliable methods, repeat abortion and condom non-use, which is in good agreement with other studies [152–156].

Only half of the non-pregnant respondents exposed to IPV, compared with two thirds who had not been exposed, had used a reliable contraceptive method in the recent intercourse, placing many abused women at risk of unintended pregnancy. At the same time, a paradoxical gap between contraception use and

fertility desire was detected among our study respondents. Likewise, IPV survivors had an elevated risk for a repeat abortion and this association was even stronger after adjustment. More IPV survivors reported that they did not use any contraceptive method because they were planning a pregnancy. Nevertheless, in the hypothetical case of becoming pregnant, they were significantly more likely to opt for an abortion rather than have the baby, or expressed their ambivalence about the decision. One reason for this discrepancy might be also reproductive coercion – male behaviours to promote a pregnancy that is unwanted by the women – in an abusive relationship [153,212]. In many studies IPV was associated with higher parity [14,153,157]. In Estonia, where abortion services are safe and easily accessible, it might be that in the case of unintended pregnancy women choose an abortion, which could explain why there was no difference in the number of births between IPV exposed women compared to the reference group. The high prevalence of physical and sexual violence by intimate partners provides evidence for and underlines the importance of IPV as a contributing factor in women's reproductive choices and sexual health outcomes. In Estonia where guidelines have not been introduced to govern how medical professionals should handle cases of IPV, in case of a repeat induced abortion, STI/HIV, dyspareunia, and in cases where there are no other evident causes for symptoms, to ask about abuse, help to identify and address women's needs in violent relationships, e.g. find suitable partner-independent contraceptive methods.

7.4. Strenghts and limitations

The main **strengths** of the research are:

1. The validity of the surveillance system, the Estonian Abortion Registry, which has national data coverage, a large number of observations and few data losses, provides a unique opportunity to utilise a reliable dataset for a detailed and comprehensive overview of SH in Estonia.
2. Our study provided an opportunity to investigate the influence of determinants on abortion, using complete abortion reporting in a unique situation – legislation and access to abortion have not changed, but political, economic and social changes have been significant during the last two decades in Estonia.
3. The Estonian Women's Health Survey is based on a probability sample that helps to avoid some of the (selection) biases associated with the convenience (ie clinic based) samples and thus the estimates derived, e. g., prevalences, can be generalized to the population of Estonia.
4. This was the first time in Estonia when data about unmet need for contraception and sexual health outcomes of IPV have been presented.
5. The comparability of the research instruments used – the Estonian Women's Health Survey questionnaire and the Reproductive Health and Fertility Survey used in St. Petersburg – allows meaningful comparison of the results

in Estonia, Russia (and Finland) for assessing contextual (health care and socio-political systems) effects on SH.

The main **limitations** of the research are:

1. The main limitation of EAR is related to the surveillance system not permitting personal identification and not allowing analysis of associations between different socio-demographic factors and abortion.
2. The Abortion Card offers five options for contraceptive methods. It cannot be guaranteed that misclassification of contraceptive methods did not occur. For example, despite the availability of transdermal and vaginal hormonal contraceptive methods since the early 2000s, the Abortion Card includes only "oral hormonal contraception". It was our assumption and field experience that under the methods named "other" mostly unreliable contraceptive methods such as the rhythm and withdrawal methods and spermicides were classified.
3. Cross-sectional surveys have limitations regarding causality and only provide evidence of correlations. To decribe the direction of causations, we relied on previous evidence from the literature.
4. Self-reported measures are open to measurement errors such as social desirability and recall biases, especially with life events occurring a long time ago. To minimize recall bias we used a standardized well-structured questionnaire.
5. A potential major source of error lies in the interpretation of the data. Reporting of sexual health behavior is particularly susceptible to contextual influences [213]. Observed differences may result from the variation in values attached to particular SH factors, and the social desirability governing their disclosure. Therefore, anonymous study participation, in order to minimize some of the underreporting and social desirability biases, was used.
6. Somewhat different sampling methodologies were used in the Estonian Women's Health Survey and in the Reproductive Health and Fertility Survey in St. Petersburg. To ensure a meaningful interpretation of the differences and similarities across the study groups, an adjusted analysis was performed.
7. While measuring contraceptive prevalence, division into reliable and unreliable contraceptive methods is imprecise since the effectiveness of each method is dependent on its correct and consistent use [88]. We do not have data on how consistently the methods were used. Therefore, we have used the conservative option to identify the contraceptive method used during the most recent intercourse at least 12 months before the study as an outcome measure. Although we categorized the male condom as a reliable contraceptive method, we are aware that the male condom has been described as one of the most discontinued contraceptive methods [214]. The way we categorised the methods was based on the argument that condoms provide a more reliable protection against unwanted pregnancy than alternative methods. As unreliable methods (such as rhythm method and withdrawal)

are prevalent in Estonia and St. Petersburg, we were particularly interested in analysing factors associated with commonly used unreliable contraceptive methods in the area.

8. Respondents were asked about their exposure to physical and sexual IPV in the last 12 months preceding the study and not over their lifetime. Therefore, we cannot determine the temporal sequence between the timing of sexual health outcomes and violence and the results might be biased by the fact that some women had been survivors of violence experienced in their childhood. Other types of IPV, besides physical and sexual violence, may also influence sexual health outcomes but our questionnaire did not capture those. However, we believe that our results are reliable providing robust associations consistent with data from a large variety of samples between IPV and adverse sexual health outcomes [17–19,152–154,157,210].

8. CONCLUSIONS

1. Trends over 16 years indicate a favourable decline of induced abortion and a slow but consistent decline of repeat abortion in Estonia, mainly attributed by younger cohorts. The high prevelance of repeat abortions reflects the high abortion rate in the past and if current trends continue, a rapid decline in repeat abortions may be predicted in future years. In respect of repeated abortions, non-Estonians, women with lower educational attainment, students and women with children represent particularly vulnerable groups. More than half of the women did not use any contraception prior to their first or repeat abortions.
2. The high prevalence of contraception non-use and the use of unreliable contraceptive methods in Estonia reflect a high unmet need for family planning for many women. There were substantial differences between the groups of women studied: contraceptive non-use and the use of unreliable contraceptive methods among women who were at risk of unintended pregnancy was lower among Estonians (27.3%) than to Russians in Estonia (39.9%) and in St. Petersburg (42.5%). The clear associations between unmet need for contraception with sociodemographic factors and high-risk health behaviour among Estonians were not found among Russians in Estonia or in St. Petersburg.
3. Contraceptive counselling for women over 24 years old was provided mainly by gynaecologists working in specialized out-patient women's clinics or private practices, the role of family doctors is modest. At least 81% of respondents were satisfied with the friendliness, confidentiality, competence and length of the visit from all health care providers.
4. A substantial proportion of women (one fifth) in Estonia have experienced IPV during the last 12 months and this was associated with unmet need for contraception and adverse sexual health outcomes: repeat induced abortion; lifetime STI/HIV; and dyspareunia.

9. MAIN PRACTICAL IMPLICATIONS

1. The study provides evidence of a strong link between improvements in sexual health services, sexuality education and contraception availability with decreases in the abortion rate. Any efforts taken to reduce unintended pregnancy will reduce the need for repeat abortions. During the process of abortion, it is crucial to provide contraceptive counselling as standard care, with an emphasis on initiating contraception immediately after abortion and encouraging long-acting contraceptive methods.
2. To decrease the burden of sexual ill-health, mainly unintended pregnancies, the problems related to access to evidence-based information about contraception by the Russian ethnic group in Estonia should be addressed at a national level with an emphasis on reliable, e. g. hormonal, contraceptive methods.
3. To improve access to contraception and ensure a continued decline in the number of abortions, the role of primary care as the provider of contraceptive counselling needs to be increased. There is clearly an opportunity for efforts to promote the family medicine system as a provider of contraceptive counselling, which requires making a shift in women's preferences, connected with both traditions and prevailing attitudes towards family planning.
4. All strategies and interventions aimed at promoting sexual health should include prevention of violence against women, e.g., intimate partner violence and strengthening of women's sexual rights. The development and implementation of a strategy and guidelines for dealing with IPV in the health care system, involving different stakeholders, should be urgently addressed in Estonia.

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APPENDIX

QUESTIONNAIRE

1. Background information

Date of completing the questionnaire: _____

1. When were you born? 19___

2. Are you currently *(you can choose several alternatives):*

1 married
2 cohabiting
3 divorced
4 separated
5 widow
6 single

3. How many times you have been married/cohabiting (cohabiting that later continued as marriage is counted as one event)? _____ *(times)*

4. Your citizenship: _____

5. Your native language: _____

6. How many persons are living with you *(choose one from each row)*?

	yes	*no*
1 I live alone	1	2
2 spouse	1	2
3 co-habiting partner	1	2
4 children under the age of 18	1 ..... persons	2
5 children over the age of 18	1 ..... persons	2
6 daughter's/son's spouse, grandchildren	1 ..... persons	2
7 my/my co-habiting partner's parents	1 ..... persons	2
8 my/my co-habiting partner's brothers/sisters	1 ..... persons	2
9 my/my co-habiting partner's other relatives	1 ..... persons	2
10 friends, acquantances	1 ..... persons	2
11 lodgers	1 ..... persons	2
12 others	1 ..... persons	2

7. How many pesons are living together at your home (count yourself also)?
_____ persons

7a. Where do you live?

1 Tallinn, Tartu, Pärnu, Kohtla-Järve or Narva
2 smaller town/urban settlement
3 rural area

8. How many years of education have you had (count school and later education years)?

_____ years

9. What is the highest level of education you have completed?

1 basic/less
2 secondary
3 vocational secondary
4 vocational higher
5 university
6 postgraduate degree

10. Are you currently:

1 employed
2 unemployed
3 at home
4 pupil/student
5 retired, not employed. At what age did you retire? _____ years
6 other, what _____

11. What is your current/most recent occupation?

_____

12. In what occupation have you been employed the longest?

_____

14. What is your monthly average income (monthly salary after deductions and other allowances)?

_____ EEK

15a. What is your household's average monthly income (monthly salary after deductions and other allowances)?

1 _____ EEK
2 don't know

15b. How many persons live on this income (yourself inluded)? _____ persons

16. Do you have difficulties paying your bills (for housing, electricity, heating etc)?

1 all the time
2 often
3 sometimes
4 rarely
5 never

18a. How many rooms does your family have (not counting utility rooms and bathrooms)?

_____ rooms

17. Below is a list of various items, which of the following do you have in your household? *(choose one from each row*)

	yes	*no*
1 microwave	1	2
2 video recorder	1	2
3 television (colour)	1	2
4 washing machine	1	2
5 dishwasher	1	2
6 car	1	2
7 fridge	1	2
8 holiday cottage	1	2
9 video camera	1	2
10 satellite/cable TV	1	2
11 telephone	1	2
12 mobile phone	1	2

2. Intimate relationships and sexuality

19. At what age did you have your first serious relationship (dating, boyfriend/girlfriend – the relationship may/may not have included sexual intercourse)?

1 I was _____ years old
2 I haven't had such a relationship

21b. Have you ever had the following sexual experiences? At what age for the first time?
(choose one from each row)

	yes, first time at the age of	*yes, but I don't remember the age*	*no*
1 masturbation	1 ..... years	2	3

2 kissing	1 ..... years	2	3
3 petting (touching each other)	1 ..... years	2	3
4 oral sex	1 ..... years	2	3
5 anal sexual intercourse	1 ..... years	2	3
6 vaginal sexual intercourse	1 ..... years	2	3

21c. Have you masturbated during the last month?
1 yes
2 no

20. At what age did you have your first sexual intercourse (vaginal and/or anal)?
1 _____ years old
2 I haven't experienced intercourse

The following questions are for those who have had sexual intercourse. If you haven't had sexual intercourse, go to question 25.

21. How old was the partner of your first sexual intercourse?
1 _____ years old
2 don't know

21a. Which of the following statements best describes your first sexual partner?
1 I had just met him
2 we knew each other earlier, but were not dating
3 we had a steady relationship

22. Which contraceptive method did you use in your first sexual intercourse *(you can choose several alternatives)*?
1 nothing
2 withdrawal (a man does not öet the sperm into the vagina)
3 condom
4 contraceptive pills
4a contraceptive patch
5 emergency contraception (SOS-pills, Postinor
6 rhythm method (calculating "risky" days)
7 spermicide (vaginal ovules, creams)
8 some other method, what *(for example vaginal douche etc)?* .....
9 don't remember

23. How many sexual intercourse partners have you **ever** had? _____ partners

24. How many sexual intercourse partners have you had **during the last year**?
_____ partners

30. When did you have the latest sexual intercourse?

1 during the last 24 hours
2 1–2 days ago
3 3–4 days ago
4 5–7 days ago
5 1–2 weeks ago
6 3–4 weeks ago
7 1–3 months ago
8 4–12 months ago
9 1–2 years ago
10 3–10 years ago
11 more than 10 years ago
12 I haven't had sexual intercourse

30a. How often have you had sexual intercourse **during the last 30 days**?

1 I haven't had sexual intercourse during the last 30 days
2 once
3 2–3 times
4 once a week
5 2–3 times a week
6 3–4 tmes a week
7 5–6 times a week
8 every day/more often

30b. How often have you experienced pain/discomfort during/after sexual intercourse in your genitals (vaginal entry, vagina, abdomen)?

1 never
2 very rarely/few times
3 less than half of all occasions
4 about half of all occasions
5 more than half all occasions
6 almost always/always
7 I haven't been able to experience sexual intercourse because of pain/fear of pain
8 I haven't experienced sexual intercourse

30c. A release of sexual tension at its peak and the ensuing feeling of pleasure and relaxation is called orgasm. How often have you experienced orgasms in your present relationship during sexual intercourse, oral sex, petting and other activities?

1 always/almost always
2 on more than half of all occasions
3 on about half of all occasions
4 on less than half of all occasions
5 vary rarely/few times

6 I haven't experienced orgasms
7 I don't have a sexual relationship at the moment

30d. Are you satisfied with the frequency of sex (sexual intercourse, oral sex, petting etc) in your present steady/couple relationship?

1 I wish to have sex considerably more often
2 I wish to have sex a bit more often
3 I am satisfied with the present frequency
4 I wish to have sex a bit less often
5 I wish to have sex considerably less often
6 I don't have a steady/couple relationship at the moment

31. Did you consume alcohol before your last sexual intercourse?

1 no
2 yes, a little
3 yes, moderately
4 yes, a lot
5 I don't remember

All the respondents, please continue from here.

25. Do you have a steady heterosexual relationship (that includes sexual intercourse, oral sex/petting) at the moment *(you can choose several alternatives)*?

1 yes, with my spouse
2 yes, with my co-habiting partner
3 yes, with somebody else
4 no, I don't have a sexual relationship at the moment

27. How are you satisfied with your present sexual relationship?

1 very happy
2 fairly happy
3 not happy, not unhappy
4 fairly unhappy
5 very unhappy
6 I don't have a sexual relationship at the moment

27a. During the last year have you experienced:

	very often	*fairly often*	*fairly rarely*	*never*
1 lack of sexual desire	1	2	3	4
2 your partner's lack of sexual desire	1	2	3	4

26. If you are married/cohabiting, then for how long have you been living together? (please count also cohabiting before marriage)

1 _____ years and _____ months
2 I am not living with anybody at the moment

80. Do you think that a woman may refuse sexual intercourse, in the following situations *(choose one from each row)*:

	yes	*no*
1 the woman has recently given birth	1	0
2 the woman knows/thinks that her partner/spouse is HIV-positive/has STDs	1	0
3 her partner/husband is physically violent	1	0
4 her partner/husband is drunk	1	0
5 her partner/husband has a parallel sexual relationship	1	0
6 the woman is tired	1	0
7 the woman does not want to have sexual intercourse	1	0

28. Talking about sexual life and contraception with your current partner is:

1 very difficult/even impossible
2 fairly difficult/complicated
3 not very difficult, especially when we have started talking
4 very easy
5 I have no sexual partner at the moment

29. Have you had parallel sexual relationships during the present marriage/cohabitation?

1 no
2 yes, casual
3 yes, permanent
4 yes, casual and permanent
5 I have no marriage/cohabitation at the moment

32. Sometimes people feel sexual attraction towards the same gender. At the moment your sexual attraction is directed:

1 only to men
2 mostly to men
3 equally to men and women
4 mostly to women
5 only to women

33. Have you had sexual experiences (sexual intercourse, oral sex, petting) with someone of the same gender?

1 no
2 yes, once

3 yes, several times

34. Has anyone tried to induce you to have sexual intercourse with them for money or other economic gain?

1 no
2 yes, but I have refused
3 yes, I have agreed once
4 yes, I have agreed several times

35. Did your parents discuss sexuality related topics with their children?

1 yes, even too much
2 yes, sufficiently
3 yes, too little
4 no, but I would have wished it
5 no, but I wouldn't have wished it

36. Were sexuality related topics discussed at school?

1 yes, even too much
2 yes, sufficiently
3 yes, too little
4 no, but I would have wished it
5 no, but I wouldn't have wished it

3. Pregnancies and children

37. Are you pregnant at the moment?

1 no
2 yes
3 don't know

38. Are you breastfeeding at the moment?

1 no
2 yes, exclusively breastfeeding
3 yes, the child gets additional food too

39. How old is the child you are breastfeeding? _____ months *(write 0, if you have no child whom you are breastfeeding at the moment)*

40. How many times have you been pregnant? *(write 0, if you have not been pregnant)*?

_____

41. How

1 miscarriage _____ (how many) in _____ (years)

2 ectopic pregnancy _____ (how many) in _____ (years) 3 induced abortion _____ (how many) in _____ (years)
4 childbirth _____ (how many) in _____ (years)

The following questions are for those respondents who have given birth. Those who have not, go to question 52a.

Children born *(children from multiple pregnancies are to be noted separately)*

	1.child	2. child	3. child	4. child	5. child	6. child	7. child	8. child
42. Year of birth								
43. The child was born *(choose one)*								
1 alive	1	1	1	1	1	1	1	1
2 dead	2	2	2	2	2	2	2	2
44. The child was								
1 a girl	1	1	1	1	1	1	1	1
2 a boy	2	2	2	2	2	2	2	2
45. Does the child live with you at the moment?								
1 yes	1	1	1	1	1	1	1	1
2 no	2	2	2	2	2	2	2	2
46. If the child is not living with you at the moment, then when did she/he leave home? *(year)*?								
47. Did you live with the child's father when the child was born?								
1 yes	1	1	1	1	1	1	1	1
2 no	2	2	2	2	2	2	2	2
48. Did you live with some other grown-up (a friend, acquaintant, relative) when the child was born?								
1 yes	1	1	1	1	1	1	1	1
2 no	2	2	2	2	2	2	2	2

49. How long did you breastfeed your last child (count also non-exclusive breastfeeding)?
1 not at all
2 less than 1 month
3 _____ months
4 I am breastfeeding at the moment

50. Who looked/looks after your last pre-school aged child, when you were/are working? *(you can choose several alternatives)*
1 I am not working at the moment, I am/was at home with the child
2 the father is/was at home with the child
3 grandparents
4 other relatives

5 the child goes/went to a state nursery
6 the child goes/went to a private nursery
7 other, *what?*_____
8 I have no children

51. In case you have employed a nanny, how did you find him/her? *(you can choose several alternatives)*

1 through aquaintances
2 through neighbours
3 through relatives
4 through nanny finding agency
5 through an advertisement
6 I have not employed a nanny

52. Who looked after you when you were of pre-school age? *(you can choose several alternatives)*

1 mother and/or father
2 grandparents
3 other relatives
4 I was at the nursery
5 other, *what?* _____

4. Use of pregnancy and delivery related health care services

All continue from here.

52a. If you were pregnant now and **you would like to continue** the pregnancy, which health care provider would you contact first *(choose only one answer)*?

1 women's out-patient clinic
2 family doctor
3 private gynaecologist
4 youth-friendly clinic
5 somewhere else, *where?*_____
6 I wouldn't go to a doctor
7 I don't know

52b. If you were pregnant now, **and you would not like to continue** the pregnancy, which health care provider would you contact first *(choose only one answer)*?

1 women's out-patient clinic
2 family doctor
3 private gynaecologist
4 youth-friendly clinic
5 somewhere else, *where?*_____

6 I wouldn’t go to a doctor
7 I don't know

If you have had no pregnancies, go to question 64.

53. Which health care providers did you use in connection with your last/current pregnancy *(you can choose several alternatives)*?
1 women’s out-patient clinic
2 family doctor
3 private gynaecologist
3a youth-friendly clinic
4 other, *what?*_____
5 I didn’t use any doctor
5a I don't remember

The following questions are about abortion. If you have had abortions, then please answer regarding your last abortion. If you have had no abortions, go to question 64.

57a. What contraceptive method were you using when you became pregnant and consequently decided to have an abortion? *(you can choose several alternatives)*
1 nothing
2 contraceptive pills
2a contraceptive patches
3 intrauterine device (“spiral”)
4 condom
5 spermice (vaginal ovules, cream)
6 diaphragm
7 contraceptive implants
8 sterilisation: own, partner *(please underline)*
9 rhythm method (calculating “risky” days)
10 withdrawal (a man does not let the sperm into the vagina)
11 vaginal douche *(with what agent?)* .....
12 emergency contraception (SOS-pills, Postinor)
13 some other method, *what?* .....
14 don't remember

58. Where was the abortion induced?
2 hospital gynaecology ward/day care)
4 private clinic/practice
5 somewhere else, *where?* _____

59. Did you pay for the abortion?
1 yes, the official sum

1 yes, non-officially, how much? *(please specify the amount)*_____

2 yes, the official sum and also non-officially, how much? *(please clarify the amount of money)* _____

3 I payed with other means, please specify

_____

4 no, I didn't pay

59a. Indicate your satisfaction with the amount of information you received from the doctor/nurse **before the abortion** about the following topics *(choose one from each row):*

	very satisfied	*fairly satisfied*	*fairly unsatisfied*	*very unsatisfied*
1 abortion procedure	1	2	3	4
2 possible psychological influences	1	2	3	4
3 possible medical risks/complications related to abortion	1	2	3	4

60a. Did you receive counselling about contraception before/after the abortion?

1 yes
2 no
3 don't remember

61. Were you satisfied with the way you were treated in the hospital/clinic during the abortion?

1 very satisfied
2 fairly satisfied
3 fairly dissatisfied
4 very dissatisfied
5 cannot say

I wish to comment:

_____
_____
_____

62. What were the reasons in your decision to have an abortion? *(you can choose several alternatives)*

1 I was not ready to take the responsibility for raising a child
2 I didn't want to raise a child alone
3 I didn't want to jeopardise my relationship/family unity with the birth of another child
4 my couple relationship was unstable/problematic
5 I didn't want to have a child with this particular partner

6 I gave up this pregnancy because of pressure from my partner/parents *(underline)*
7 for economic reasons
8 my living space (flat) was too small and I was not able to improve my living conditions
9 I was in the middle of my studies
10 work didn't allow it
11 I was not mature enough to be a mother
12 I was too young
13 I had nobody who would have helped me to take care of the child
14 I didn't have time for the child
15 other, *please specify*_____

63. Did you discuss the abortion beforehand with your partner?
1 no
2 yes

63a. Where did you go for a follow-up visit **during one month** after the abortion? *(you can choose several alternatives)*
1 I didn't go for the follow-up visit, why?_____
2 hospital, where the abortion was induced
3 policlinic, women's outpatient clinic
4 private clinic
5 somewhere else, where?_____
6 don't remember

All continue from here.

64. Have you ever had difficulties in getting pregnant, although you were having regular sexual intercourse during one year?
1 yes
2 no *(go to question 66b)*

65. Have you been investigated and/or treated for possible infertility?
1 yes, most recently in _____ (year)
2 no (go to question 66)

65a. What treatments have you received for infertility? *(choose one from each row)*

	yes	*no*
1 hormonal treatment	1	2
2 insemination (IUI) = sperm is placed in the uterus	1	2
3 in vitro fertilization (IVF)	1	2
4 IVF with microinjection (ICSI) = sperm is placed into the egg cell	1	2

during IVF		
5 IVF with cryopreserved embryos (FET)	1	2
6 other treatment (incl all alternative treatments), *what?*_____	1	2

66. If you haven't sought medical help for your infertility or you have discontinued investigations, what is the reason for this*?(you can choose several alternatives)*

1 I still want to wait and try to become pregnant naturally
2 I don't want medical interference
3 I haven't been aware what treatments for infertility are available
4 I am too old to get treatment
5 investigations are too expensive
6 hospital and infertility clinics are too far away
8 it is difficult to get an appointment to the specialist
9 my partner does not want to come for the investigations
10 my relationship came to an end
11 I was ashamed to approach a specialist with that problem
7 other reason, *what?* _____

66a. Have you been satisfied with the information you received during infertility investigations and treatment about the following topics? *(choose one from each row)*

	satisfied	*fairly satisfied*	*fairly unsatisfied*	*unsatisfied*
1 infertility investigations and treatment	1	2	3	4
2 psychological effects of infertility	1	2	3	4
3 possible medical risks related to investigations and treatment	1	2	3	4

All continue from here.

66b. If you became preganant now, what would be your most probable decision?

1 I would have a baby
2 I would have an abortion
3 don’t know

67. At what age did you have your first menstruation? _____ years

68. Have you had the following sexually transmitted diseases? *(choose one from each row)*

	yes	*no*	*don’t know*
1 genital herpes	1	3	2

2 papillomavirus/condylomas	1	3	2
3 chlamydiosis	1	3	2
5 gonorrhoea	1	3	2
6 syphilis	1	3	2
7 HIV/AIDS		3	2
8 trichomoniasis	1	3	2
10 other genital tract infection (bacterial vaginosis, thrush)	1	3	2

5. Contraception

If you have not experienced sexual intercourse, go to question 78.

70. Which contraceptive method did you use during **your last sexual intercourse**?
(you can choose several alternatives)

1 we did not use any contraceptive method as we are trying to conceive
1a we don't need/use any contraceptive method as we are not able to conceive
2 contraceptive pills
2a contraceptive patch
3 intrauterine device ("spiral")
4 condom
5 spermicide (vaginal ovules, creams)
6 diaphragm
7 contraceptive implants
8 sterilisation: own, partner *(please underline)*
9 rhythm method (calculating "risky" days)
10 withdrawal (a man does not let the sperm into the vagina)
11 vaginal douche *(with what agent?)* .....
12 emergency contraception (SOS-pills, Postinor)
13 some other method, *what?* .....

71. Who decided on using contraception in your last sexual intercourse?

1 I
2 my partner
3 we both
4 someone else, *who?* _____
5 don't know, don't rememberwe didn't use contraception during our last sexual intercourse

If you used a contraceptive method during your last sexual intercourse, go to question 73.

72. If you did not use a contraceptive method during your last sexual intercourse, what was the reason? *(choose a maximum of three answers)*

1 I was not aware of available contraceptive methods
2 I didn't want to use contraception
3 my partner didn't want/didn't allow me to use contraception
4 we do not need contraception as we are planning a pregnancy
5 we do not use contraception for religious reasons
6 we do not need contraception as I am pregnant at the moment
7 we do not need contraception as I / my partner is infertile
8 other reason,
*what?*_____

72a. If you did not use a contraceptive method during your last sexual intercourse, where there any additional reasons? *(choose one from each row)*

	yes	*no*
1 I am afraid of the side effects of contraceptive methods	1	2
2 contraceptive methods are too expensive	1	2
3 it is difficult to obtain contraceptive methods	1	2

73. If you use/have used condoms, then why? *(choose only one answer)*
1 mainly for avoiding pregnancy
2 mainly for avoiding sexually transmitted diseases
3 equally for avoiding pregnancy and sexually transmitted diseases
4 other, *please specify* _____
5 we haven't used condoms

74. Have you ever used contraceptive pills?
1 yes
2 no

74a. If you have formerly used pills, but stopped, then why? *(you can choose several alternatives)*
1 I didn't need contraception any more
2 I was afraid of possible side effects, *please specify?*
_____
3 I experienced side effects and/or contraindications, *please specify?*
_____
4 for economic reasons
5 a doctor/nurse recommended me to stop/have a break
6 other, *please specify* _____

76. Are you satisfied with your current contraceptive method?
1 very satisfied
2 fairly satisfied
3 fairly dissatisfied
4 very dissatisfied

5 I don't use contraception at the moment

77. Have the costs affected your decisions concerning the use of contraception during the last year? *(Choose all that apply*

1 no
2 because of the cost, I haven't used the method I would have liked to
3 I have not been able to visit a doctor as often as I consider necessary
4 I have not been able to have all the necessary laboratory tests
5 I don't know
6 other, what ?_____
7 I haven't needed contraception during last year

All continue from here.

78. When did you last visit a health care service for contraceptive counselling/prescription?

1 less than 6 months ago
2 6–12 months ago
3 more than one year but less than 2 years ago
4 2–5 years ago
5 more than 5 years ago
6 I haven't visited a health care institution for that purpose
7 don't remember

78a. Which health care service did you last visit in order to receive contraceptive counselling/prescription?

1 women's outpatient clinic
2 family doctor
3 private gynaecology clinic
4 youth-friendly clinic
5 elsewhere, *where?*_____
6 I haven't visited a health care service for that purpose
7 don't remember

79. Evaluate how well the following aspects of care were carried out during your last visit for contraception? *(choose one from each row)*

	very dissatisfied	*fairly dissatisfied*	*fairly satisfied*	*very satisfied*	*don't remember*
1 friendliness	1	2	3	4	5
2 competence	1	2	3	4	5
3 reliability	1	2	3	4	5

4 length of the visit	1	2	3	4	5

79a. Have some of the following impeded you in visiting a doctor for contraception **during the last year** *(you can choose several alternatives)*?

1 it was difficult to get an appointment
2 doctor is far away/bad transportation connections
3 it is not easy to get an appointment to a gynaecologist (specialist)
4 I didn't know where to find a good gynecologist
5 I would like to visit someone else than my own doctor
6 previous negative experiences
7 I was ashamed to visit a gynaecologist
8 I was afraid of the gynecological examination
9 other reasons, *what?* _____
10 I have not had any problems with such visits
11 I haven't needed any physician services regarding contraception

103. Where would you prefer to go for a contraceptive visit/prescription? *(choose only one from each part)*

A.

1 the same doctor whom I visit for other health reasons
2 some other doctor
3 doesn't matter if I know the doctor or not
4 I cannot say

B

1 gynaecologist
2 family doctor
3 doesn't matter
4 cannot say

C

1 male doctor
2 female doctor
3 doesn't matter
4 cannot say

D

1 private doctor
2 family doctor centre
3 women's outpatient clinic
3a youth friendly clinicdoesn't matter
4 cannot say

75. Have you heard about morning-after pills (Postinor) before completing this questionnaire?

1 yes
2 no

75a. Have you ever used morning-after pills?

1 no
2 yes, _____ times

81. It has been said that men participate too little in making contraceptive choices and during childbirth. In your opinion, should men's role/involvement be changed in regard to: *(choose one alternative from each line)*

	increased a lot	*somewhat increased*	*no change necessary*	*decreased*	*cannot say*
1 Responsibility for contraception?					
	1	2	3	4	5
2 Responsibility for costs of contraception?					
	1	2	3	4	5
3 Visiting maternity services during pregnancy?					
	1	2	3	4	5
4 Participation in childbirth?					
	1	2	3	4	5
5 Responsibility in deciding about induced abortion?					
	1	2	3	4	5

6. Reproductive plans

82. If you think in general terms, not from your personal point of view, then:

1 What is the ideal number of children in a family nowadays?_____ child/children

1 How long is the ideal spacing between children? _____ years

3 What is the ideal age for having a first baby?

a) for a woman _____ years

b) for a man _____ years

83. How many children would you yourself like to have? _____ child/children

If you have a child/children, go to question 86.

84. If you do not have a child, then why haven't you had one? *(you can choose several alternatives)*

1 I haven't met such partner with whom I would like/ would have liked to have a child
2 we have tried to conceive, but have not been successful so far
3 I wish to finish my studies first
4 my partner wishes to finish his studies first
5 I wish to get stable work first
6 my partner wishes to get stable work first
7 I wish to go on with my career
8 I feel that I am not mature enough to take responsibility for a child
9 I feel that my partner is not mature enogh to take responsibility for a child
10 for economic reasons
11 I would like to have stable living conditions first
12 there are problems in our relationship
13 other, *what?*_____
14 don't know

85. If you chose more than two answers to the previous question, please specify which answer is the most important for you?
1 answer number _____
2 don't know

From here all continue.
86. Are you planning to have a child/children in the future?
1 no *(go to guestion 90)*
2 don't know, I haven't decided *(go to guestion 90)*
3 yes, I wish to have ..... (number) children
4 I am pregnant at the moment, in the future I wish to have another ....(number) children

87. When do you wish to have your first/next child?
after _____ years

88. Why do you wish to have one more child/more children? *(you can choose several alternatives)*
1 the child/children we have need a brother/sister
2 I wish to have a daughter
3 I wish to have a son
4 I enjoy watching a child's development
5 life continues only through children
6 my partner wishes to have more children
7 I wish to have a child with my current/new partner
8 a common child is a sign of mutual love
9 I desire a little baby/have "baby fever"
10 more children are needed to preserve the Estonian nation

11 I do not want to be alone when I am old
12 children are of help doing domestic work
13 I wish to take care of a child and love him/her
14 I want to have a big family
15 I want (once more) to experience a delivery
16 I wish to experience motherhood
17 a human being has to have as many children as God gives
18 a child gives you a goal in life, to live and work
19 children bring variety to one's life
20 other, *what?* _____
21 don't know

89. If you chose more than two answers to the previous question, please specify which answer is the most important for you?
1 answer number _____
2 don't know

Questions 90-93 are for those who do not want to have more children/have not decided yet.

90. If you do not want to have (more) children/are unsure, then why? *(you can choose several alternatives)*
1 I am not married/cohabiting with anyone, there is no suitable father for a child
2 my partner does not want (more) children
3 my partner does not take part in domestic work and looking after children as much as I would expect
4 there are problems in our relationship
5 I wish to spend more time with my partner and shared hobbies
6 I probably cannot have children
7 if I have a child I cannot continue working/studying (as much as I do now)
8 I am afraid that in case of a new child I will lack time and attention for my older child/children
9 I am afraid that life would be too hard
10 I do not want to be engaged with little children (any more)
11 I do not want to be pregnant and/or give birth (any more)
12 I think I am too old for having babies
13 I want to dedicate myself to other things I am interested in
14 I/we do not have enough money for children
15 our living conditions are not suitable for a bigger family and we are not able to improve them
16 I/my partner do not have stable employment

17 the possibilities of help in looking after the child are unstable
18 society does not support families with children
19 the world is overpopulated
20 my/my family's health problem prevents me having a child
21 other, *what?* _____
22 don't know

91. If you chose more than two answers to the previous question, please specify which answer is the most important for you?
1 answer number _____
2 don't know

92. Are there any possible changes in society/in your private life that can affect your decision about having (more) children? *(you can choose several alternatives)*
1 improvement/stabilisation of personal economic conditions
2 moving to a larger home
3 sufficient possibilities to be at home with a child/children
4 sufficient opportunities for acceptable babysitting arrangements
5 an increase in financial assistence to families with children
6 the availability of a good and trustworthy babysitter (e.g. near home)
7 women's and men's equal participation in domestic work
8 certainty that your job will still be there after you have given birth
9 working hours are shorter and more flexible
10 Estonia becames a safer place to live
11 Estonia's pouplation decreases to a critical level
12 people are more friendly towards children
13 solution of global problems (pollution, nuclear weapons etc)
14 I am not able to have children
15 other, what?_____

93. If you chose more than two answers to the previous question, please secify which answer is the most important for you?
1 answer number _____
2 don't know

7. Health and use of health care services

94. How do you rate your current level of health?
1 very good
2 good
3 neither good nor bad
4 bad
5 very bad

95. How do you rate your quality of life?

1 very good
2 good
3 average
4 bad
5 very bad
6 don't know

96. Do you have some long-term illness, physical disability or handicap, injury or pain, that affects your functioning or ability to work)

1 no
2 yes, *what?*_____

97. How tall are you? _____ cm

98. How much do you weigh (not being pregnant)? _____ kg

99. Have you visited a doctor during the last 12 months because of a disease (and also pregnancy and delivery)? Do not count hospitalisations.

1 no
2 yes, _____ times

100. Have you been hospitalised during the last 12 months because of a disease (and also pregnancy and delivery)?

1 no
2 yes, _____ times

101. At what age did you firs visit a gynaecologist?

1 _____ years
2 I haven't visited a gynaecologist
3 don't remember

101a. How do you rate your first visit to a gynaecologist?

1 very positive experience
2 fairly positive experience
3 fairly negative experience
4 very negative experience
5 don't know

I wish to comment:

_____
_____
_____

102. Have you undergone any of the following examinations? *(please answer all the questions by choosing the most appropriate number on each row)*:

	During last 5 years	*Earlier*	*Never*	*Don'y know, remember*
1 mammography (breast X-ray examination)	1	2	3	4
2 breast examination (doctor)	1	2	3	4
3 breast ultrasound examination	1	2	3	4
4 PAP-smear (oncocytology)	1	2	3	4
5 gynecological examination	1	2	3	4

104. Have you been smoking at least one sigarette, sigar or pipe per day during one year?

1 no
2 yes formerly, but not now
3 I smoke daily
4 I smoke periodically

105. How often do you drink sufficient alcohol to get drunk?

1 daily
2 few times a week
3 once a week
4 twice a month
5 once a month
6 once every two months
7 3–4 times a year
8 once a year/less
9 never

106. Have you ever used drugs?

1 no
2 yes, intravenous
3 yes, other

107. Have you experienced the following situations during the last year *(you can choose several alternatives)*

	by partner	*by husband (marriage or cohabiting)*	*by someone else*
1 threatened with violence	1	2	3
2 pushed, shaken, had something thrown at you	1	2	3

3 hit with something that caused/could have caused physical injury	1	2	3
4 threatened with a knife/other object	1	2	3
5 physically forced to have sexual intercourse	1	2	3
6 threatened/frightened into having sexual intercourse	1	2	3
7 forced against your will to participate in other sexual acts	1	2	3
8 no	0		

108. If you have been quarreling with your partner during the last year, how often did you have... (mark x)

	no	1-2	3-5	6-10	11-20	> 20
1 bruises/pain						
2 wounds/broken bones						
3 injuries that needed medical attention						
4 we have not quarreled						

109. Have you talked to anyone about the violence?

1 no
2 yes, who? _____
3 I haven't experienced violence

Thank you!

If you wish to comment:

_____

SUMMARY IN ESTONIAN

Naiste seksuaaltervist ja reproduktiivseid valikuid mõjutavad tegurid Eestis

Maailma Terviseorganisatsioon defineerib seksuaaltervist (ST) täieliku kehalise, emotsionaalse, vaimse ja sotsiaalse heaolu seisundina, mis on seotud seksuaalsusega [1]. Mõiste annab edasi ST positiivse sisu, mis nõuab austavat suhtumist seksuaalsusesse ja rõhutab vajadust austada kõigi inimeste seksuaalõigusi. Hea ST annab võimaluse soovitud reproduktiivseteks valikuteks, sealhulgas otsutada, kas, millal ja kui palju saada lapsi, ning muuta elu ja isiklikke suhteid paremaks.

ST mõjurid on mitmetahulised ja üksteisega seotud. Bioloogiline sugu ja sotsiaaldemograafilised tegurid mõjutavad ST olulisel määral. Siiski, võrreldes teiste tervise valdkondadega, on ST puhul märksa olulisemad ka välistegurid (nt poliitilised, õiguslikud, kultuurilised, ideoloogilised ja religiooniga seotud mõjurid), mille üle inimestel endil on kontroll piiratud või see puudub.

ST kõigile inimestele oluline läbi kogu nende elukaare, kuid mõjutab bioloogiliste ja sotsiaalsete eripärade tõttu naisi enam kui mehi. Maailmas moodustavad viljakas eas naiste enneaegsest haigestumusest ja suremusest kolmaniku (32%) STga seotud põhjused [7]. Ehkki haigestumus ja suremus on peamiselt seotud raseduse ja sünnitusega, siis on ka teisi põhjuseid – naiste ebavõrdne vastutus rasedusest hoidumise ja viljatuse eest; seksuaalsel teel levivate infektsioonide, sh HIV tagajärjed naistele; naistevastase vägivalla mõju STle.

Eestis, kus heatasemeline sünnitusabi on riiklikult tagatud – seksuaalharidus ja -tervise teenused ning rasestumisvastased meetodid on hästi kättesaadavad, abort on legaalne ja turvaline – on ST pigem mõjutatud sotsiaalsest ja soolisest ebavõrdsusest [9].

Uurimistöö keskendub viljaks eas naiste seksuaaltervisele ja reproduktiivsete valikutele rõhuga indutseeritud abordile, soovimatust rasedusest hoidumisele ja paarisuhte vägivallale.

Abortide kohta on alates 1996. aastast süsteemselt andmeid kogutud Eesti Abordiregistrisse. Selle perioodi jooksul on toimunud abortiivuskordajate märkimisväärne pidev langus. Vaatamata positiivsele suundumusele on kordusabortide tase Eestis kaks korda suurem võrreldes sarnast registreerimist kasutavate riikidega [12]. Meid huvitas kordusabortide arvu trend viimase 15 aasta jooksul. Arvestades ühiskonna sotsiaal-majandusliku kihistumist, soovisime teada saada, kuidas see on mõjutanud abordivajadust erinevates sotsiaal-majanduslikes rühmades.

Abort on enamasti seotud kontratseptsiooni mittekasutamisega või kasutamise ebaõnnestumisega. Eestis ei ole süsteemseid andmeid kontratseptsioonimeetodite kasutamise ega selle mõjurite kohta. On teada, et Eestis elavate eest-

laste ja mitte-eestlaste reproduktiivsed valikud erinevad – läbi aastate on eestlaste sündimuskordajad olnud kõrgemad ja abortiivsuskordajad madalamad [11]. Meie hüpotees oli, et eestlaste ja mitte-eestlaste kontratseptsiooni kasutamise muster ning seda mõjutavad tegurid on erinevad. Selleks, et saada infot ka kontratseptsiooni välismõjurite kohta, võrdlesime kahte rahvust erisugustes sotsiaalpoliitilistes oludes Eestis ja Venemaal (Peterburis).

Kontratseptsioon, vaadates naiste seisukohalt, on üks nähtavamaid ST vajadusi – kaitset soovimatu raseduse eest vajab enamik viljaka eluperioodi kestel ja vajadused on kiiresti muutuvad. Seetõttu on eri kontratseptsioonimeetodite ja sellealase nõustamise kättesaadavus ning kvaliteet olulised. Teadaolevalt riikides, kus esmatasandi arstiabi on peamine rasestumisvastase nõustamise pakkuja, kasutatakse rohkem tõhusaid rasestumisvastaseid meetodeid ja abortiivsuskordajad on madalad [130]. Eestis on viimase kahe kümnendi jooksul lisaks naistearsti teenusele tulnud juurde uusi võimalusi rasestumisvastase nõuande saamiseks tervishoiusüsteemis: noorte nõustamiskeskused, erameditsiin ja esmatasandi peremeditsiin. Oma uurimistöös me soovisime teada, milline on eri tervishoiuasutuste roll ja patsientide hinnangud selle kvaliteedile.

ST on mõjutatud oluliselt mõjutatud paarisuhte poolt. Paarisuhtevägivald igasugune füüsilise agressiooni, seksuaalse sunduse, psühholoogilise vägivalla ja kontrolliva käitumise akt, mis põhjustab füüsilist, seksuaalset või psühholoogilist kahju [134]. Paarisuhtevägivald võib toimuda nii praeguste kui ka endiste elukaaslaste, abikaasade või intiimpartnerite vahel. Paarisuhtevägivald on seotud oluliste tervisekahjudega, sealhulgas lühi- ja pikaajaliste ST häiretega [15–23].

Paarisuhtevägivald on Eestis tähelepanu pälvinud alles hiljuti ja seda peetakse privaatseks teemaks, mitte sotsiaalmajanduslikuks probleemiks või tervisehäirete oluliseks riskiteguriks [24]. Paarisuhtevägivalda ei käsitle vajalikul määral eraldi Eesti õigusaktid ja sellega ei tegele süsteemselt tervishoiusüsteem [24,26]. Kuna ametikus statistikas kajastub paarisuhtevägivallast vaid väike osa ja olemaolevate uuringute andmeid paarisuhtevägivalla ulatuse kohta leidub vähe, huvitas meid paarisuhtevägivalla levimus ning selle mõju naiste seksuaaltervisele Eestis.

Eesmärgid

Töö üldeesmärk oli välja selgitada naiste seksuaaltervise mõjurid ja reproduktiivsed valikud Eestis.

Töö alaeesmärgid olid

1. Kirjeldada indutseeritud abortide ajatrende rõhuasetusega kordusabortidega seotud sotsiaaldemograafilistele tunnustele ja kontratseptsiooni kasutamisele enne aborti (artikkel I).
2. Mõõta kontratseptsioonimeetodite levimust ja hinnata, millised sotsiaaldemograafilised, reproduktiivanamneesi ning riskeeriva seksuaalse- ja tervisekäitumisega seotud tegurid mõjutavad kontratseptsiooni kasutamist eri rahvustel Eestis ja Peterburis; Venemaal (artikkel II).

3. Uurida, milliseid tervishoiuasutusi eelistavad ja kuidas on rahul kontratseptsioonialase nõustamisega erinevate külgedega üle 24aastased naised (artikkel III).
4. Analüüsida paarisuhte vägivalla levimust ning selle mõju reproduktiivsetele valikutele ja seksuaaltervisele (artikkel IV).

Andmed ja metoodika

Uurimistöö andmed pärinevad Eesti Meditsiinilisest Sünni- ja Abordiregistrist (I) ning kahest läbilõikelisest seksuaaltervise uuringust, mis viidi läbi Eestis (II–IV) ja Peterburis 2003–2005 (II).

Eesti Meditsiiniline Sünniregister loodi 1991. aastal ja Abordiregister 1995. aastal. Kõik Eesti territooriumil rasedusi katkestanud või katkenud rasedusega naistele arstiabi osutanud tervishoiuasutused ja eraarstid on kohustatud täitma anonüümse abordiregistri kaardi ning saatma andmed registrisse. Registris toimub: andmete kodeerimine, sisestamine, kontrollimine ja täpsustamine koostöös tervishoiuasutuste ning rahvastikuregistriga, samuti standardtöötlus, päringutele vastamine, andmete säilitamine ja paberdokumentide arhiivimine.

Esitasime andmed aastate kaupa sündimuse erikordaja (elusündide arv 1000 15–49aastase naise kohta), abortiivsuskordaja (abortide arv 1000 15–49aastase naise kohta), abortiivsuse vanuskordaja (abortide arv vanusrühmiti naiste aastakeskmise arvu kohta) ja abordimäära (abortide arv 100 elussünni kohta) aastatel 1996–2011. Analüüsisime ainult indutseeritud aborte, kordusabortide analüüsiks arvasime välja need indutseeritud abordid, mis olid tehtud meditsiinilistel näidustustel. Võrdlesime kordusaborte kahel perioodil: 1996–2003 (105, 938) ja 2004–2011 (38, 132). Käsitlesime abortide osakaalu teise, kolmanda, neljanda ja enam abordi korral. Registrist kättesaadavad taustatunnused olid vanus, haridus, perekonnaseis, rahvus, tegevusala ja eelnevate sünnituste arv. Arvutasime kordusabortide osakaalu erinevuse perioodi taustategurite lõikes ja selle protsendilise erinevuse koos 95% usaldusvahemikega iga taustatunnuse alarühma suhtes. Võrdlesime kordusabortide osakaalu 15–49aastaste naiste osakaaluga rahvastikus samas vanusrühmas kahel uuringuperioodil. Esmas- ja kordusabortide korral analüüsisime rasestumisvastaste meetodite kasutamist vahetult enne aborti kasutatud rasestumisvastase meetodi kohta (“pillid; emakasisene vahend; kondoom: muu; ei kasutanud; pole andmeid”). Analüüsisime kordusabortide osakaalu erinevusi eestlastel ja mitte-eestlastel.

Kahes läbilõikelises uuringus Eestis ja Peterburis kasutati sarnast valikvastustega küsimustikku, mis koostati rahvusvahelise teaduskonsortsiumi juhitud projekti “Reproductive Health and Fertility Patterns – A Comparative Approach” raames. Paljude küsimuste puhul lähtuti varasematest Soome uuringutest ja kasutati neis esinenud küsimusi [184–188]. Tartu Ülikooli naistekliinik korraldas anonüümse postiküsitluse, mille metoodikat on üksikasjalikult kirjeldatud uurimisaruandes [189]. Lühidalt, Rahvastikuregistri alusel moodustati vanuse järgi kihitatud juhuvalim suurusega 5190 naist vanuserühmades 16–25, 26–35 ja 36–44 a. Neile saadeti kas eesti- või venekeelne küsimustik, mis sisaldas

128 valikvastusega küsimust. Mittevastanutele saadeti küsimustik teistkordselt 10 nädala pärast. Vastamismääraks kujunes 53,8%. Uuringul on Tartu Ülikooli Inimuuringute Eetikakomitee luba.

Peterburis saadi uuritavate andmed juhuvalimina politsei jaoskonna andmebaasist kahe Peterburi linnaosa ja kolme ambulatoorset naistearstiteenust pakkuva raviasutuse kohta. Valimisse kuulus 2510 naist ja valim kihitati vanuserühma (18–25, 26–35 ja 36–44 a) ja raviasutuse järgi. Küsimustikule tuli vastata sobivas raviasutuses, kus samaaegselt pakuti naistearsti konsultatsiooni. Mitteilmunutele helistati või viidi küsimustik koju. Vastamismäär oli 66,7%. Uuringul on Peterburi Uuringute Akadeemia Eetikakomitee luba.

Kontratseptsioonimeetodite levimust ja kasutamise mõjureid uurisime kolme rahvastikurühma lõikes eraldi: eesti emakeelega vastajad Eestis (1189), vene emakeelega vastajad Eestis (491) ja Peterburis (768). Uuringusse kaasati viimase 12 kuu jooksul seksuaalvahekorra kogemusega 20–44-aastased naised, kes ei soovinud rasestuda. Analüüsisime rasestumisvastaste meetodite kasutamist vanuserühmiti (20–24, 25–34 ja 35–44 a) kohandades tulemused Euroopa standartrahvastikule. Kasutatud rasestumisvastased meetodid kui sõltuva tunnuse jaotasime nende efektiivsuse alusel [88] kahte rühma: tõhusad (hormonaalsed meetodid, emakasisesed meetodid, steriliseerimine, kondoom) ja ebatõhusad meetodid (spermitsiidid, rütmimeetod, katkestatud suguühe). Viimasele rühmale lisasime tupeloputuse ja rasestumisvastase meetodi mittekasutamise. Hindasime ebatõhusate rasestumisvastaste meetodite ja kontratseptsiooni mittekasutamise seoseid taustateguritega: vanus, haridus, perekonnaseis, majanduslik toimetulek, eelnenud sünnituse ja/või abordiga lõppenud rasedused ja suitsetamine. Moodustasime liittunnuse, mis iseloomustas seksuaalset riskikäitumist.

Kontratseptsioonialase nõustamise hindamine artiklis III hõlmab 25–44 aastaseid naisi, kes olid pöördunud tervishoiuasutusse rasestumisvastase nõuande/meetodi saamiseks tervishoiuasutusse viimase viie aasta jooksul (866). Vastusevariantides loetletud tervishoiuasutused olid: naistenõuandla, perearsti vastuvõtt (edaspidi perearstikeskus), naistearsti vastuvõtt erakliinikus (edaspidi erakliinik), noorte nõustamiskeskus ja muu. Uuringust langesid välja noorte nõustamiskeskuses ja mujal käinud vastajad ning need, kellel andmed tervishoiuasutuse kohta puudusid. Rahulolu personali sõbralikkuse, asjatundlikkuse, usaldusväärsuse ja visiidi kestusega viimasel pöördumisel hindasid vastajad neljaastmelisel skaalal: väga rahul, pigem rahul, pigem rahulolematu, väga rahulolematu. Vastusevariantide alusel moodustati andmeanalüüsiks binaarne tunnus. Võimalikest rahulolu mõjutavatest taustateguritest vaatlesime hariduse, perekonnaseisu, majandusliku toimetuleku, elukoha ja tervise enesehinnangu seoseid rahulolu eri külgedega. Lisaks hindasime, kuivõrd tervishoiuasutus, kuhu pöörduti, osutus samaks, mida küsitletu oleks eelistanud, ning rahulolu seoseid külastatud tervishoiuasutusega.

Paarisuhtevägivalla levimust küsitlusele eelneva 12 kuu jooksul ja selle seoseid eri seksuaaltervise aspektidega uurisime 16–44aastastel mitterasedatel seksuaalvahekorra kogemusega naistel (1966). Paarisuhtevägivalla toimepanijana

arvestasime ainult praegust või endist partnerit. Vägivalla hindamiseks kasutasime seitsmest küsimusest koosnevat moodulit, milles olid üksikasjalikud küsimused vägivallaga ähvardamise, kehalise ja seksuaalse vägivalla eri ilmingute kohta. Moodustasime sõltuva tunnusena kaks uuritavate rühma – ühed olid viimase 12 kuu jooksul kogenud füüsilise, seksuaalse või füüsilise ja seksuaalse vägivalla akte (362) ja teised mitte (1604). Analüüsisime neis rühmades kontratseptsioonimeetodite kasutamist viimases seksuaalvahekorras. Taustateguritest vaatlesime vanust, haridust, perekonnaseisu, rahvust, tegevusala, majanduslikku toimetulekut ja eelnevaid rasedusi. Erinevusi kahe rühma vahel hinnati hii ruut testi abil (P = 0,05). Näitajad kohandasime taustateguritele, mis statistiliselt usaldusväärselt erinesid rühmiti (vanus, haridus, majanduslik toimetulek, rahvus) neis mudelites, kus analüüsisime paarisuhtevägivalla seoseid kontratseptsiooni mittekasutamisega, ebatõhusate rasestumisvastaste meetodite kasutamisega, kordusabordiga, kondoomi kasutamisega elu jooksul, seksuaalsel teel levivatesse infektsioonidesse nakatumisega ja düspareuuniaga.

Esitasime sõltumatute tunnuste kohta absoluut- ja suhtelised väärtused. Seoseid sõltuva tunnuse ja taustategurite vahel hindasime logistilise regressioonanalüüsi abil. Riski hindamiseks arvutasime kohandamata ja taustateguritele kohandatud šansisuhte ning selle 95%lise usaldusvahemiku. Logistilise regressioonanalüüsi mudelis kohandasime šansisuhted valitud taustateguritele.

Andmeanalüüsil kasutasime statistikapaketti Stata 10.

TULEMUSED

Indutseeritud abort (artikkel 1)

Aastal 1996 oli Eestis 16 887 ja 2011 6 689 indutseeritud aborti, abortiivsuskordaja oli vastavalt 48,3 ja 20,7 ning abordimäär 128,7 ja 45. Sel perioodil langes abortiivsuskordaja 57,1% ja abordimäär 65,0%. Samal ajavahemikul tõusis sündimuse erikordaja 22,9%. Abortiivsuskordjad langesid kõigis vanuserühmades, kuid enam 20–29aastaste hulgas, kus abortiivsuskordja oli ja on kõrgeim. Kordusabordid moodustasid 63,8% (67 626) perioodil 1996–2003 ja 58% (38 132) perioodil 2004–2011. 26% moodustas teine abort mõlemal uuringuperioodil, kolmas vastavalt 17,2% ja 15,9% ja neljas või enam 20,6% ja 16,1%. Kordusabortide osakaal langes vaadeldud perioodidel kõigi sotsiaaldemograafiliste tunnuste lõikes, kuid oli kõige märgatavam alla 30aastastel, kõrgharidusega ja mittesünnitanud naistel. Muutus ei olnud statistiliselt usaldusväärne õppuritel ega alg- ja põhiharidusega naistel. Viimaste osakaal on kordusaborti teinute hulgas tõusnud. Kui 1996 aastal moodustasid vähema haridusega naised 7,7%, siis 2011. a 19,2% kõigist kordusaborti teinutest. Kuigi 20–29aastaste naiste osakaal oli rahvastikus perioodil 2004–2011 kõrgem, oli kordusabortide osakaal nende hulgas madalam võrreldes perioodiga 1996–2003. Kordusabortide osakaal vähenes nii eestlaste kui mitte-eestlaste seas, kuid oli mitte-eestlastel suurem nende hulgas, kes olid teinud kolm ja enam aborti. Mõlemal uuringuperioodil ei olnud üle poolte naistest vahetult enne aborti kasutanud rasestumisvastaseid meetodeid.

Kontratseptsioonimeetodite levimus ja seda mõjutavad tegurid Eestis ja Peterburis (artikkel II)

Eri kontratseptsioonimeetodite levimus Eestis erines rahvuseti. Vastajatest, kes vajasid kaitset soovimatu raseduse eest, ei kasutanud üldse või kasutas ebatõhusaid meetodeid eesti emakeelega vastajatest 27,3%, vene emakeelega vastajatest 39,8% ja vastajatest Peterburis 42,5%. Tõhusate rasestumisvastaste meetodite kasutamises ilmnesid suured erinevused hormonaalsete meetodite (vastavalt 29,1%; 14,4% ja 11,0%) ja kondoomi korral (vastavalt 20,4%, 30,3% ja 41,3%). Viiendik Eesti vastajatest kasutas emakasisest meetodit, samal ajal Peterburis kasutas seda vaid 8,1%. Eesti emakeelega vastajad, kes olid vanemad, kel oli majanduslikke raskusi, kes suitsetasid ja kelle hulgas oli enam levinud seksuaalne riskikäitumine, kasutasid enam ebatõhusaid rasestumisvastaseid meetodeid või ei kasutanud neid üldse. Sellised seosed puudusid mitte-eestlastel. Eelnev sünnitus ja/või abort suurendasid oluliselt tõenäosust kasutada usaldusväärseid rasestumisvastaseid vahendeid eestlastel ja vastupidi, vähendasid seda Peterburis. Eestis vene emakeelega naistel vähendas tõenäosust kasutada tõhusate rasestumisvastaste meetodite kasutamist eelnev abort.

Kontratseptsioonialane nõustamine Eestis (artikkel III)

Rasestumisvastase nõuande/vahendi saamiseks pöördus viimase viie aasta jooksul tervishoiuasutustesse 61% kõigist 25–44aastastest vastanutest. 74% oli külastanud naistearsti naistenõuandlas, 17% naistearsti erakliinikus ja 9% perearsti. 74% oli külastanud soovitud tervishoiuasutust. Enamik vastajaist (vähemalt 81%) olid rahul sõbralikkuse, asjatundlikkuse, usaldusväärsuse ja visiidi kestusega kõigis külastatud tervishoiuasutuses. Teenuse eri külgedega olid oluliselt enam rahul need, kes olid külastanud soovitud tervishoiuasutust, kes hindasid oma tervist paremaks, väikelinnade ja maapiirkondade elanikud, eesti emakeelega vastajad. Perearsti ja erakliiniku külastajatel oli suurem šanss olla rahul visiidi kestusega (võrreldes naistenõuandlat külastanutega), erakliinikus ka personali usaldusväärsusega.

Paarisuhte vägivalla levimus ja selle mõju reproduktiivsetele valikutele ja seksuaaltervisele (artikkel IV)

Paarisuhtevägivalda oli uuringule eelnenud aasta jooksul kogenud 18,4% vastajatest. Füüsilist vägivalda oli kogenud 17,2%, seksuaalset vägivalda 4,1% ja mõlemat 1,8%. Paarisuhtevägivalda kogenud vastajad olid oluliselt vähem kasutanud tõhusaid rasestumisvastaseid meetodeid viimases seksuaalvahekorras ning kondoomi elu jooksul; nad olid oluliselt enam katkestanud rasedusi, nakatunud seksuaalsel teel levivatesse infektsioonidesse ja kogenud düspareuuniat.

Järeldused ja praktilised soovitused

1. Viimase 16 aasta trendid näitavad märkimisväärset indutseeritud abortide langust ja aeglast, kuid püsivat kordusabortide langust, eriti nooremates vanuserühmades. Kordusabortide jätkuvalt kõrge tase on põhjustatud kõrgest

abortiivsusest minevikus, olemasolevate trendide jätkudes võib ennustada peatset kordusabortide taseme kiiret langust. Kordusabortidest on enim ohustatud madala haridustasemega, mitte-eestlastest ja sünnitanud naised. Pooled naised ei kasutanud enne aborti mingit rasestumisvastast meetodit. Kõik meetmed, mis vähendavad soovimatuid rasedusi ja hoiavad ära esmasabordi, vähendavad ka kordusabordi vajadust. Abordi korral peab kontratseptsioonialane nõustamine muutuma enesestmõistetavaks teenuse osaks. Kontratseptsiooni kasutamist peab alustama kohe pärast aborti eelistades pikaajalisi taaspöörduvaid rasestumisvastaseid meetodeid.

2. Katmata vajadusi naiste reproduktiivsetes valikutes peegeldab asjaolu, et kolmandik naistest, kes vajavad kaitset soovimatu raseduse eest, kasutasid ebatõhusaid rasestumisvastaseid meetodeid või kasutanud neid üldse. Ilmnesid olulised erinevused eestlaste ja mitte-eestlaste vahel nii kontratseptsioonimeetodite levimuses kui nende kasutamisega seotud tegurites. Selgelt on olemas vajadus edastada tõenduspõhist infot kaasaaegse tõhusa kontratseptsiooni kohta ja pöörama rohkem tähelepanu Eesti venekeelsele kogukonnale.
3. Üle 24aastased naised said ja eelistasid saada kontratseptsioonialast nõu naistearstilt naistenõuandas või erakliinikus. Esmatasandi roll oli tagasihoidlik. Vähemalt 81% vastajatest oli rahul sõbralikkuse, asjatundlikkuse, usaldusväärsuse ja visiidi kestusega kõigis külastatud tervishoiuasutuses. Et parandada kontratseptsioonialase nõu kättesaadavust, peab edendama esmatasandi arstiabi rolli nõustamise pakkujana.
4. Paarisuhtevägivald on Eestis väga levinud – iga viies naine kannatas füüsilise või seksuaalvägivalla all uuringule eelnenud 12 kuu jooksul. Paarisuhtevägivalla kogemus oli oluliselt seotud seksuaaltervise riskidega. Seksuaaltervise edendamiseks ja parandamiseks kasutatavad strateegiad Eestis peavad sisaldama naistevastase vägivalla, sh paarisuhtevägivalla ennetamist, et paremini kaitsta naiste seksuaalseid õigusi. Kiire vajadus on paarisuhte- ja seksuaalvägivalla strateegia ning käsitlusjuhendi väljatöötamiseks Eesti tervishoiusüsteemis.

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PUBLICATIONS

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Research and development

Main fields of research: women's sexual rights and health, focused on contraception, sexually transmitted infections, gender-based violence and sexual health care services.

Author of 13 papers in the international peer reviewed journals, 7 international conference presentations, 2 articles in *Eesti Arst* and many other publications promoting sexual health.

A developer of professional e-learning.

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Töökogemused

2008–	Tartu Ülikooli Kliinikumi naistekliiniku seksuaaltervise keskus, naistearst-õppejõud
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2000–2008	Ravimfirma Novo Nordisk AS, Baltimaade äriüksuse juht
1998–1999	Ravimfirma Schering AG meditsiiniline konsultant
1996–1997	AS Pro Med, ravimfirma Innotech International esindaja
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Teadus- ja arendustöö

Peamiseks uurimisvaldkonnaks on naiste seksuaalõigused ja -tervis rõhuasetusega kontratseptioonile, seksuaalsel teel levivatele infektsioonidele, soopõhisele vägivallale ja seksuaaltervise teenustele. 13 rahvusvahelise eelretsenseeritava artikli, 7 rahvusvahelise konverentsi ettekande, 2 “Eesti Arst” ajakirja artikli ja paljude eriala tutvustavate artiklite autor. Arendanud erialast e-õpet.

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